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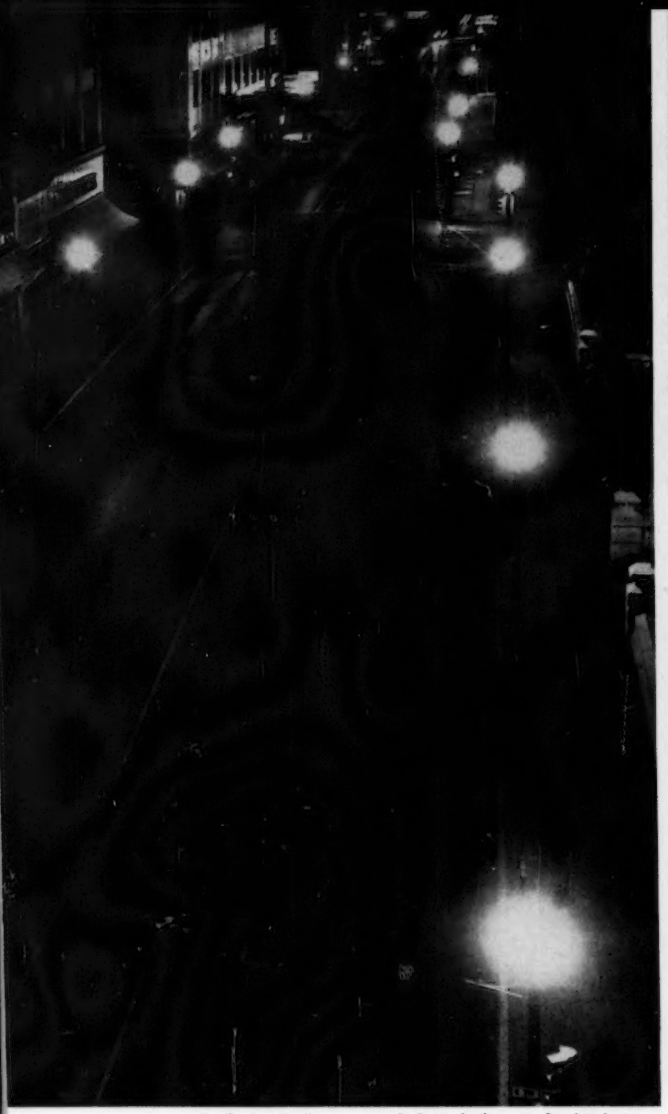
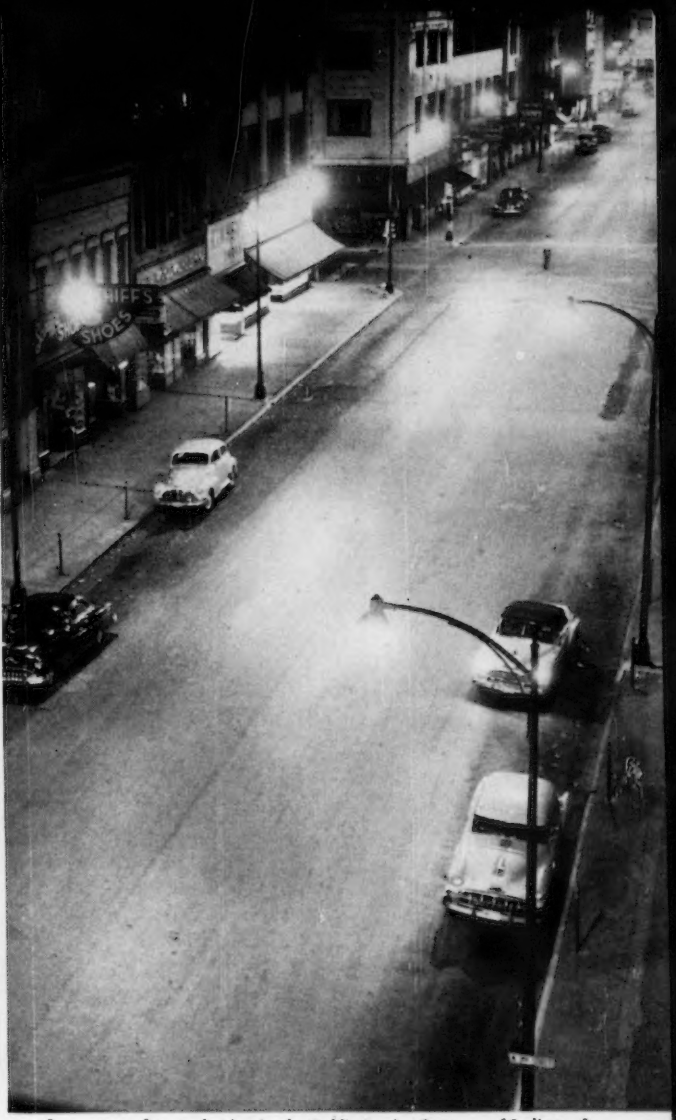
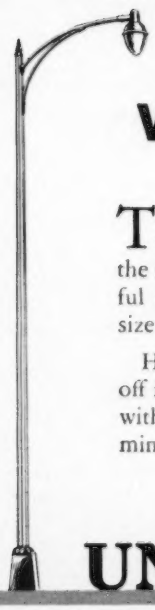


Lafayette, Indiana, street lighting before *modernization.*



Same street after *modernization by Public Service Company of Indiana, Inc.*



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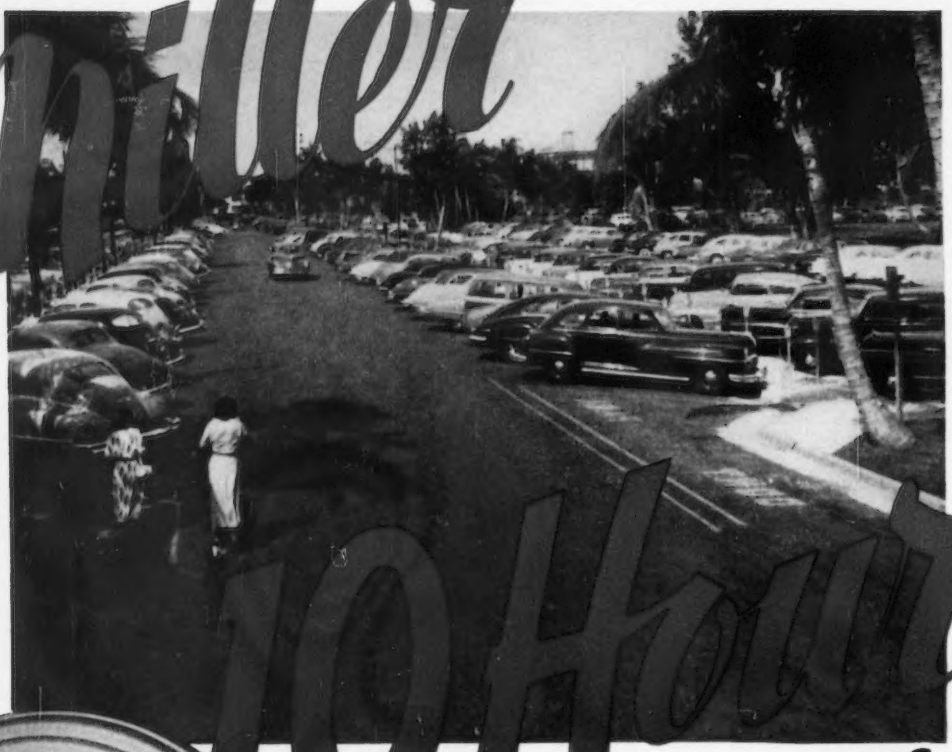

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Traffic Engineering

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

VOLUME XXIII | OCTOBER, 1952 | NUMBER 1

COVER: Three-mile long, limited access, six-lane highway built by the Port of New York Authority, connecting Lincoln Tunnel with New Jersey arterial highway system. This $17,000,000 project includes an open cut through Bergen Hill, viaduct over marsh land and grade-separated connections to principal New Jersey highways which are used by 80% of Lincoln Tunnel traffic.

Photo Courtesy Port of New York Authority

Traffic Engineering is that phase of engineering which deals with the planning and geometric design of streets, highways, and abutting lands, and with traffic operation thereon, as their use is related to the safe, convenient, and economic transportation of persons and goods.

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Frankly Speaking

AT THIS recent Annual Meeting of ITE in Chicago, much comment was heard about the rapid growth of the organization in terms of membership. Certainly this is a healthy condition, and it is hoped that this upward trend will continue in the years ahead. On this particular matter, however, nostalgic mutterings were to be heard from some of the old-timers, organizationwise, with a harkening back to the good old days of the Institute's infancy, and the fact that things have certainly changed. Some of these utterances were of dubious tenor as regards the change and whether or not it was for the better. The writer can count many members in the Institute with a greater number of gray hairs than himself, however can still remember back to an era of fewer members which made for greater personal acquaintance and closeness which is not physically possible to such a degree now, nor will it be in the future as we continue to grow. Notwithstanding the good points to be said for a small group permitting of greater personalized contacts, any attempts to force a status quo will only lead to stagnation and a falling short of our responsibilities to the traffic engineering profession as well as the transportation-minded public.

The growing stature of the Institute is increasingly evident, a fact pointed up during the course of the recent Centennial of Engineering at Chicago wherein our relatively young organization was accorded a place alongside the old line technical and engineering societies. With the increased stature goes professional authority as well as responsibility. Traffic engineers, both within and without the Institute, are turning in increasing numbers to our organization for technical guidance in the transportation field.

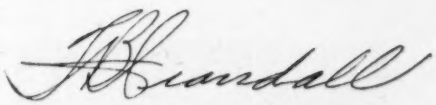
In the course of determining procedural techniques, acceptable practices and policies, we will be a rarity amongst technical organizations if we do not have differences of thoughts in formulating our ideas for dissemination—these differences will have to be resolved however, and decisions made. The newer members of the Institute will need all the guidance and experience possible from the older experienced traffic engineers; conversely however, the more youthful contingent (organizationally) will no doubt cause a few raised eyebrows—let us be tolerant of each other's thinking.

Many commercial, public, and quasi-public organizations who have dealings with traffic engineers are looking to the Institute, again in increasing instances, for expressions of policy with regard to matters affecting their operations. The integrity and prestige of the Institute will certainly be ill affected if it fails to expedite these matters within the internal structure and subsequent issuance of forthright expression of policy. There will be difficult decisions to make and in some instances the answers which we give will not be to the liking of certain groups or individuals. Even with the utmost deliberation and exercise of judgment, mayhap we will see fit to retract or change our thinking in policy matters; however, I think we should accept this and hope we can maintain a fair average, and if time proves that we should change our thinking, proceed to do so.

If we are to properly discharge the responsibilities of our growing organization, it will be necessary to constantly improve our internal organizational set-up and make it work. This can be accomplished only through the work of our Committees and the support of the National Organization on the part of Local Sections. Help forthcoming from our Committees and Local Sections is going to have to be in the form of productive work, not merely moral support.

The shortage in technical manpower has been pointed up many times and the consequent increasing difficulty on the part of operating organizations to maintain optimum staff in their organizations. It obviously follows that those of us in engineering positions are heavily taxed to keep pace with the demands of our bread and butter jobs. To offset this, in part at least, with our ever increasing membership we should be able to spread the Committee work within the Institute such as will not result in a heavy load on any one individual.

Those who are privileged to serve on the Board of Direction of the Institute will bend every effort to guide and conduct Institute affairs in a manner which, it is hoped, will preserve and enhance the prestige and respect which the Institute has attained—their efforts will fall far short without the whole-hearted and productive support of the membership at large.



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23rd Annual ITE Meeting Paper

Paper No. 1, Presented at First Technical Session
Theme: The Economics of Traffic Planning, 1:30 P.M., September 9, 1952

The Needs of Urban Transportation

By Walter P. Hedden
Director of Port Development, The Port of New York Authority

MY FRIENDS in the baby carriage business tell me that the post-war birth rate of children in the United States made them bullish about their business future. The birth rate of motor cars in recent years, and every day observations of traffic on our streets and highways seem to promise full employment for traffic engineers for some time to come.

The cars, trucks and buses flooding our highways and crowding our city streets squarely challenges everyone concerned with highway and transport construction, street congestion, accident prevention and urban planning.

Your Chairman has asked me to make the keynote speech on the subject of *"Needs of Urban Transportation."* If I understand a keynote speech properly it is supposed to review the accomplishments of the party, tell what is wrong with the other fellow, and inspire the audience not to quit until the real business gets started. I will aim at keeping you in your seats.

It has been my fortune to be associated for thirty years with the Port of New York Authority, and to have had a hand in planning a number of major transportation and terminal developments in our metropolitan port district, which embraces Southern New York State and Northern New Jersey within a 25-mile radius around the Statue of Liberty.

Over the years, we have provided some 16 major projects for highways, rail, air and ocean transport. All of these have involved estimating both the public need for facilities to promote more efficient movement of vehicles, goods, and people, and the ability of some $400,000,000 worth of terminal and transportation projects to carry themselves in the future on a self-supporting basis.

To a large extent, all of the projects are interrelated. To be able to fill a public need and be self-supporting, an airport must be accessible by ground transport to the urban centers it serves. A marine terminal rapidly becomes obsolete unless it is designed so that it has adequate space on the land side for receipt and delivery of freight and passengers without congestion. Vehicular bridges and tunnels do not function adequately unless linked properly with connecting arterial street systems and supported by motor carrier terminals and parking lots.

The problems of design, construction and operation of terminal and transport facilities in a region embracing 200 separate civil divisions and 13,000,000 people are complex enough to satisfy any engineer, but on top of that are superimposed the coordination with Federal, State, County, Municipal governmental units and private transport companies, and the financial problem of finding means of raising the money and paying it back without recourse to tax funds.

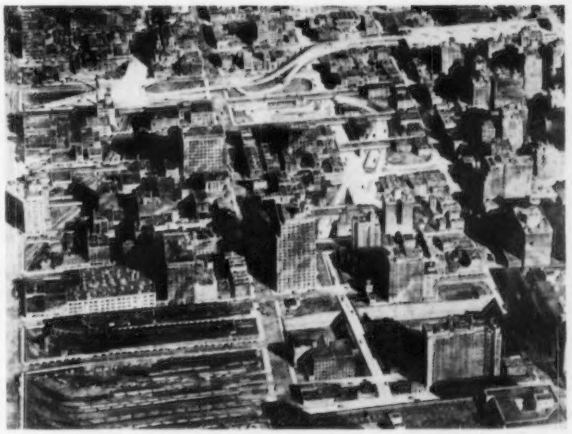


Fig. 1
New Manhattan connections to be built to Lincoln Tunnel Plaza at cost of $22,000,000. Port Authority Bus Terminal at upper right.

One of the long-range problems which must be appraised in planning and financing self-supporting facilities is the trend of public demand for transportation. This has at least two aspects. First, the relative preference for each type of transport; i.e., highway versus rail and air in domestic movements, and air versus ocean vessels in overseas transport. Second, local regional geographic shifts, as industries, housing, and commercial establishments move out from the old "downtown centers" into the urban outskirts or the surrounding suburban areas.

The other day in the New York Herald-Tribune column entitled "ONE HUNDRED YEARS AGO," I noticed an 1852 advertisement by a gentleman seeking a residence "located within one mile of a railroad station or a steamboat dock." How times have changed!

People still want to get from their homes to their business but they no longer are willing to wait for the steamboat. A great many of them are no longer primarily interested in the railroad station. New freeways and turnpikes, and a network of local roads have now opened up territories sparsely served, if at all, by rail. Bus travel and travel by

Fig. 2
Washington Heights Interchange leading to tunnels under Manhattan streets and George Washington Bridge.

private car, either solo or under a car pool arrangement, have shown astounding growth.

We have a record of the total movement of passengers between New Jersey and New York across the Hudson River from the Battery to Yonkers since 1927. In the twenty years between 1930 and 1950, rail passengers fell off by approximately 100,000 per day; ferry passengers declined by about 45,000; bus passengers increased slightly over 80,000; and passengers in private automobiles increased by 60,000. With minor variations, depending on local geography, I believe that the trend from rail to road has been the same in all large urban regions.

In the New York Metropolitan area, the trend of movement from the north and east (Upper Manhattan, the Bronx, Westchester, Southern Connecticut and Long Island to Manhattan south of 60th Street) has been similar except that the rail and subway movement has not actually declined, although the percentage gain is less than the vehicular increase.

And now we have the prospect of helicopter travel, as well as the fixed wing plane. Up to the time of the Korean conflict, a helicopter could be classed as a rather expensive equivalent of a three or four seated private automobile. Now there are models planned to carry 30-40 passengers, the equivalent of a bus load of people, which may be in commercial operation within a decade or two. Some experts believe that within 20 years, nearly 20,000 passengers a day may be traveling to or from Manhattan by helicopter. But let's get our feet back on the ground to examine the changes in travel habits which are already upon us.

The revolution in transportation which has taken place as a result of new highways, multiplication of private cars and mushrooming of suburban bus lines is changing the whole metropolitan pattern. Old travel habits along established rail lines are giving way. Commuter rail lines not only in New York but elsewhere are feeling the pinch of reduced revenues. Scores of decentralized industrial and shopping centers are springing up on the outskirts and are being connected on the periphery with each other. All roads no longer lead to the core of the region. New suburban plants and shopping centers are equipping themselves with huge parking lots and with freight receiving platforms to accommodate motor trucks.

The growing decentralization of business, industry and shopping centers since the end of World War II is evident. A bulletin of the Regional Plan Association of New York, published in August of this year, states that 84% of new plant construction between 1946 and 1950 is located in areas that contained little industry prior to 1946. During these five years, only 54 plants have been constructed in Manhattan (2% of the metropolitan total) against 250 plants in Bergen County, New Jersey, 402 plants in Union and Middlesex Counties in New Jersey, 134 in Fairfield County, Connecticut, 258 in Nassau County, Long Island. Five New Jersey counties west of the Hudson River led in total value of new plant construction. The construction of new shopping centers has followed the same trend. The increase in employment and of facilities for trading in these hitherto suburban "bedroom" areas may be reflected in a slowing down in the daily movement to the old central core of downtown and midtown Manhattan. This is already evident in the movement between Northern New Jersey and Manhattan where the total number of weekday passengers by all means of transportation has not increased over the past twenty years.

However, currently the pressure on highway facilities of all types, including the trans-Hudson bridges and tunnels, continues to grow at a rapid pace. This is partially due to the fact that commuters are locating in new areas better served by road than by rail or ferry. There is also a continued increase in through movement by private car of people who merely pass across the Hudson River and through Manhattan enroute to some destination beyond.

Our studies indicate that only half of the private car passengers using the trans-Hudson bridges and tunnels have a Manhattan origin or destination. The remainder now use Manhattan streets and expressways only to travel between the New Jersey side and Westchester, New England and Long Island. I believe that our experience in this regard is duplicated in other urban areas and reemphasizes the need for by-pass routes for through traffic around the central areas. It is probably utopian to assume that half of the total trans-Hudson traffic in private cars can ever completely by-pass Manhattan since many will continue to make a beeline to the Brooklyn-Queens areas by the shortest distance which, of course, is through Manhattan. However, about one-quarter of the total can eventually be detoured north or south of Manhattan by bridges now contemplated across the Hudson River north of the George Washington Bridge and across the Narrows of New York Bay, between Staten Island and Brooklyn.

This leaves about 75% of the private car traffic, plus the buses and trucks, which are primarily destined to Manhattan itself, to be handled by enough under-river lanes to accommodate peak hour movement, supported by every practical device to minimize the use of the Manhattan streets themselves.

There are three ways in which this can be accomplished:—

1. Integration of the major arterial highways (tunnels, bridges, turnpikes, thruways) with each other to minimize use of local streets by through traffic.
2. Provision of adequate plazas and street connections to disperse local traffic exiting or entering arterial highways to prevent bottlenecks.
3. Provision of terminals for common carriers (buses and motor trucks) as close as possible to the exits and entrances of arterial roads; and including, as far as practicable, parking lots in conjunction therewith for both the common carrier units when not in active use, and supplemental parking lots for private cars.

Fig. 3
New exit ramp uder construction (foreground) will connect George Washington Bridge with Henry Hudson Parkway eliminating present circuitous route and traffic grade crossing.

In planning and constructing its vehicular tunnels and bridges across the Hudson River, the Port Authority has assumed substantial financial burdens, amounting to about 40% of the cost of these projects, in making direct connections to major arterial highways on both sides, and in providing adequate plazas for dispersal of the traffic to avoid street bottlenecks.

For example, the Lincoln Tunnel connecting Midtown Manhattan with the New Jersey side has elaborate direct connections in both states with the main thruways. Nearly 85% of the Lincoln Tunnel traffic is interchanged in New Jersey with the state highway system to the west. A three-mile connection from the tunnel plaza, including a six-lane cut through the Bergen Hill, an elevated viaduct over the Meadows, and an interchange to the New Jersey Turnpike (front cover) has been built at a total cost of $17,000,000 by the Port Authority and turned over to the State of New Jersey. On the New York side, an oversize plaza, including an eight-lane north-south street was built in 1937 to disperse traffic to six crosstown streets and three north-south avenues. In connection with the expansion of the Lincoln Tunnel capacity by two additional under-river lanes, an additional subsurface New York interchange to connect with three more crosstown streets, plus street widenings to give better access to the West Side Expressway and to the express 9th and 10th Avenues, is planned. (Fig. 1)

At the George Washington Bridge, similar elaborate interchanges are provided on both sides of the river. On the New Jersey side, the bridge plaza was extended to connect with main arterial State Routes No. 4 and No. 6. A further expansion to connect with the Palisades Interstate Parkway, under construction to the north, has been started.

On the New York side, the George Washington Bridge has been connected by two tunnels under Washington Heights to an elaborate interchange (Fig. 2) with the Harlem River Drive and the cross-Bronx Expressway. The first stage of an improved connection (Fig. 3) from the George Washington Bridge to the Henry Hudson Parkway will also be completed next year.

At the Holland Tunnel, a new $3,500,000 viaduct in Jersey City was put in service last year to improve the connections between the Tunnel and the Pulaski Skyway. Plans have been made with the City of New York to connect the Holland Tunnel to a lower Manhattan Crosstown Elevated Expressway, whenever the construction of that arterial highway is undertaken by the City.

One of the most spectacular improvements designed to accommodate the growing interstate bus traffic without congesting the streets of Manhattan is the Port Authority Bus Terminal (Fig. 4) at the New York end of the Lincoln Tunnel. This $24,000,000 structure, completed in December 1950, is a unique combination of a terminal for passenger bus lines and a roof parking area for private cars, all connected by direct ramps to the plaza of the Lincoln Tunnel. Thus, the great bulk of the road movement by bus between New York and New Jersey, which has grown up over the past twenty-five years, no longer touches the City streets. Between 5,000 and 6,000 vehicle trips in and out of Midtown Manhattan per day are handled without use of the City streets. In addition, 450 spaces for private car parking are in active use. Areas beneath the ramps used by these buses and private cars are devoted to parking space for over 200 buses in off peak hours.

To aid with the truck problem, the Port Authority has also embarked on a program of union freight terminals, strategically located. One of these, an assembly point for rail less-carload freight, has been in operation on the West Side of Manhattan at 15th Street since 1932. A ground level platform, with recessed truck berths, occupies a four-acre site and permits shippers to receive and deliver freight for all railroads at one platform, instead of peddling part loads through the streets to separate scattered terminals. The building is also equipped with a basement in which vehicles of the Railway Express Agency are loaded and unloaded completely off the street. The fifteen upper floors of the building are connected by elevators with the railroad freight platform,

Fig. 4
Port Authority's $24,000,000 Bus Terminal, on Eighth Avenue between 40th and 41st Streets (right), serves 130,000 daily bus pasengers.

(Continued on page 25)

Something New In Off-Street Parking

By William H. Mann (Mem., ITE)
City Traffic Engineer, Nashville, Tennessee

IN the last several years there has been much written on the question of parking. Each community has tackled the problem in its own way, frequently through costly processes of land condemnation and government construction and operation of facilities. In all too few instances have the people with the biggest direct stake in adequate parking had a direct share in the responsibility for providing that parking.

Ideally, it is said, each merchant should provide his own parking, or at least small groups of merchants should get together and provide parking for themselves, since furnishing space for customers should be part of their cost of doing business. But rarely is it actually practicable after a business area has been developed, for any but the largest merchants to provide off-street parking for their customers. Neither is the operation of a parking facility akin to a merchant's main activities.

Just over a year ago in Nashville, Tennessee, a man with an idea inaugurated a parking service which gives opportunity for that sparkplug of community economic life,—the individual merchant, be he small or large, to have a part in it and to back it up with his dollars but without being burdened by the details of operation. The man, Mr. Vernon Pegram, has risked considerable of his own capital in initiating this novel venture, but he is quick to point out that his service is strictly a cooperative business between him and the merchants associated with him. These merchants know what it costs him to do business, and by voluntary agreement, subsidize the cost of the service by prorating among themselves the cost above revenue from customers.

One of the features which makes this system attractive is that no capital outlay is required. It utilizes existing facilities entirely in the storage of vehicles. With no capital expenditure to amortize, the operator and merchants can do their planning and financing without a long term commitment on something the results of which are not easily foreseen. The costs then are essentially the direct cost of providing the service plus a fee for management.

When the parking service was begun, there was no precedent upon which to base an estimate of operating costs, but it was clear that income from parking customers could not pay the entire cost. The service was specifically designed to appeal to shoppers. The rate structure must therefore penalize the short time parker but encourage long time parkers. For the long time parker the rate becomes quite low. The minimum rate is fifty cents which pays for up to four hours. Each two hours additional costs an additional twenty-five cents, so for eight hours the rate is one dollar.

More of the advantages and details of operation are illustrated by the following description of a hypothetical case of use of the service.

Fig. 1

Parking attendant receives car at single centrally located pick-up station

Mrs. Ima Shopper from Columbia, forty-two miles from Nashville, arrived in the city about 10:30 one morning. After passing several lots and garages, each posted "Full," she saw the pick-up station of the Over-Th-Hill parking service and decided to try it. She thought as she drew up to the curb "This is so easy to get to and so convenient to all points in the shopping center, that if I find it satisfactory, I shall use it regularly on my shopping trips."

As Mrs. Shopper and the two ladies with her began to dismount, an attendant asked, "May I drop you off at your first stopping point?" "No, I think not," said Mrs. Shopper, "as we are going only into the next block, but after we have finished shopping, would it be possible to have the car delivered to Grimes Dry Goods Store on the Public Square? That is some four or five blocks away and we will have the packages we will have collected along the way." "Why, of course," replied the attendant, "Grimes is one of the twenty-five merchants associated with this service. In the store near the front door, you will find a telephone with an Over-Th-Hill sign over it. That is a direct line to our dispatcher. Lift the receiver, give the dispatcher your car check number, and where you want the car delivered, and within five minutes it will be at the door."

As the three ladies started expectantly on their shopping tour, relieved of the burden of finding a lot or garage with space for them, and of getting back to their car when they were ready to leave, the attendant got in and drove it over the hill to the Over-Th-Hill lots adjacent to the ball park. These lots are about three-quarters of a mile from the pick-up station and because not in use during the day, are available at a reasonable cost for this service. After arrival and

Fig. 2
Mrs. Shopper calls for her car from one of the 20 odd conveniently located call stations

storage of the car, the attendant joined a number of other attendants in a company truck and returned to the pick-up station.

It is clear from this brief account that the ratio of attendants to cars stored is high, and consequently direct costs tend to run up unless care is used. Success or failure of the venture depends on maintaining a suitable relationship between number of attendants and number of cars served. At present Mr. Pegram considers twenty cars per eight-hour period per attendant as average. Efficiency can be improved as volume increases.

Costs are kept low enough so that customer revenue and merchant subsidy still furnish a return to management. Careful development of the service has utilized all ideas possible for cost reduction, after accepting the necessarily high ratio of attendants to cars served. Only students are used as drivers. They serve on a part time schedule as they are able and pay is less than for full time personnel. However, dispatchers and foremen at the lots and pick-up stations are full time and are paid correspondingly more. As previously mentioned, there is no amortization charge to consider.

An incentive system has been adopted to keep to a minimum the number of accidents caused by attendants. For each month worked, a driver is given a small bonus if he has not been involved in an accident resulting from his own negligence. If he is involved in an accident in which he has contributed by his negligence, the same amount is deducted from his pay. During a year of operation only two accidents have occurred through the fault of an attendant and these have each involved less than $25.00 damage.

At the time the service began, each merchant who indicated his wish to have a part in the scheme paid a flat fee per month toward carrying the service. For this fee the direct telephone line was installed in his store. The initial agreement between Over-Th-Hill and the merchants was for four months. This was a trial period and much was learned about the operation. At the end of four months, all of the original merchants renewed their agreements, and acting as a group, decided to prorate the amount of the necessary subsidy among themselves in proportion to the traffic developed by each during the first four months.

This agreement was for a six months period. At the end of this time, one of the original merchants, who is completing a 500-car garage across the street from his store, was the first and only one to date to drop the service. Several other merchants have joined the original group. The subsidy payment now is based generally on traffic developed but also includes such factors as nearness to pick-up station, and relative value to the store as against other available parking facilities.

Mr. Pegram has had many requests to take cars on a weekly or monthly basis, or to take care of some special group such as luncheon clubs, or other group meetings. While such offers are attractive of course, the answer has had to be a firm "No." It would be quite impossible to render a satisfactory service under the circumstances if there were any decided peaks of demand in receiving or delivering cars such as would occur with groups. All comers served must be as individuals in order to avoid sudden peaks.

The success of this unique service in Nashville may be misleading. It has been tailor-made to suit local conditions and would not work at all in many localities,—especially in cities much larger than Nashville. Some of the special conditions upon which success is contingent are: 1. Availability of adequate off-street space not otherwise valuable for daytime use. 2. Distance of this space from pick-up station. It must be far enough to be unattractive for the driver to park the car himself. It must be near enough to be able to provide quick delivery. 3. A single pick-up station is desirable. It should be close to the main shopping center, accessible, yet in a place where proper city authority can permit use of the curb for standing cars briefly. 4. While perhaps not vital, the dispatcher should be so situated as to have visual control over the pick-up station. (He has a telautograph machine for communication with the lots).

Fig. 3
Mrs. Shopper receives car about 5 minutes after her phone call

(Continued on page 22)

Ohio's Accident Tabulation Technique

By Harold G. Eckhardt (Mem., ITE)

Assistant Chief Engineer, Ohio Department of Highways, Columbus, Ohio

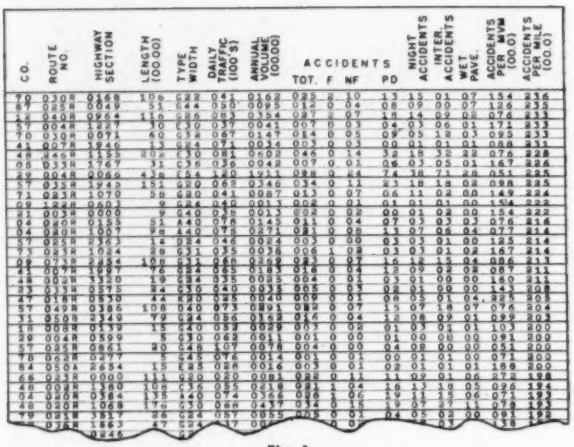
WHAT would you do if you were presented with a dazzling array of the latest and most complete set of surgical instruments? Without study, education and experience, they would be worthless to you. Similarly, the accumulation of a wealth of traffic accident information is useless to a state highway organization unless by study and experience the full potential of such data is made available in useable form.

The Ohio Highway Department, through the Division of Traffic and Safety, has what it believes to be one of the most complete and useful array of accident data to be found anywhere. It is true that not all the avenues of its usefulness have yet been explored but one fact stands out like a lighthouse; the data, although vast in its entirety, is capable of breakdown into such a multitude of listings as to be actually amazing.

The Ohio system was devised and perfected by Mr. Harold R. Kaiser, Statistician, under the direction of Mr. Harry E. Neal, Chief Engineer of the Division of Traffic and Safety. It is basically similar to the machine procedures used in other states but differs in one important respect—the punch cards are laid out to include fields for the identification of the highway section and the exact point at which the accident occurred.

The foundation of the Ohio system is the inventory log system adopted in Ohio a few years ago. Every section of the rural state highway system is identified on a separate punch card by county and route number codes and by a four-digit code number indicating the beginning of the section in miles and hundredths from a fixed point in each county. The inventory card also carries a summary of other facts, including surface type, width, traffic volume, and daily vehicle miles. For example, Route U. S. 40 as it enters the State from Indiana is logged as Section 0000. If, at a point 1.16 miles east thereof, the surface type or width changes, a new section would be logged 0116. Thus it may be seen that Section 0000 is 1.16 miles in length. All sectioning terminates at the corporation lines of municipalities which permits the segregation of urban and rural mileage. When incoming accident reports are identified by the inventory straight-line diagrams, the report is immediately associated with the system and can be pin-pointed as to location. With printed tab sheets showing detailed locations of accidents, the need for maintaining annual spot maps disappears unless wanted for public educational purposes.

In 1951 nearly 27,000 individual record punch cards were so prepared representing all reported accidents. The next step was to collate those punch cards with the individual highway inventory record cards which, when completed, merged both according to county, route number and section. Following that operation, the next phase involved the combination of data on both cards by punching a new "summary" card. In this operation new cards were produced



CO.	ROUTE NO.	HIGHWAY SECTION	LENGTH (00.00)	TYPE	WIDTH	DAILY TRAFFIC (100'S)	ANNUAL VOLUME (1000'S)	ACCIDENTS TOT.	F	NF	PD	NIGHT ACCIDENTS	INTER. ACCIDENTS	WET PAVE.	ACCIDENTS PER MVM (00.0)	ACCIDENTS PER MILE (00.0)
70	030R	0168	109	C22	041	0162	025	8	10	13	15	01	07	154	236
69	0288	0049	51	C44	050	0095	012	0	04	08	09	00	07	126	235
26	040R	0964	110	C66	063	0334	087	3	07	15	14	02	02	076	231
79	004R	1227	30	C44	077	0041	009	0	03	04	03	00	01	171	233
70	030R	0071	60	C56	067	0147	014	0	05	09	05	12	03	093	233
41	007R	1946	13	C64	071	0034	002	0	01	00	01	01	01	088	231
48	040R	1558	270	C30	061	0102	040	0	14	32	18	32	22	078	228
06	033R	1767	35	C56	036	0042	007	0	01	06	03	05	01	167	226
49	004R	2068	438	C54	120	1951	098	0	24	74	38	71	28	051	225
57	035R	1240	151	C20	062	0340	034	0	12	43	18	18	08	098	225
71	023R	1070	58	C20	041	0087	013	0	07	06	11	02	00	149	224
09	126R	0603	9	C24	040	0013	002	0	01	01	01	01	00	154	222
61	003R	0000	9	C40	028	0013	002	0	02	00	01	02	00	154	222
04	020R	0155	51	A40	078	0145	011	0	04	07	03	03	03	076	216
04	020R	1007	98	A40	075	0271	021	0	08	13	07	06	04	077	214
57	035R	2363	14	C24	045	0024	003	0	00	03	03	01	00	125	214
71	023R	1024	28	C31	035	0036	006	1	08	03	01	01	02	167	214
09	073R	2454	108	C31	068	0269	043	0	07	16	12	13	04	086	213
41	007R	1597	76	C24	065	0193	018	0	04	13	09	02	08	087	211
18	003R	1520	19	C24	035	0025	004	0	01	03	01	00	00	160	211
23	033R	0375	24	C30	040	0038	005	0	01	02	01	00	00	143	208
47	018R	0530	44	A30	025	0041	009	0	01	06	05	01	04	325	205
57	040R	0386	108	C40	073	0281	082	0	07	15	09	18	07	076	204
31	050R	2349	79	C24	056	0162	016	0	04	12	08	09	01	099	203
18	008R	0139	15	C40	052	0029	003	0	02	01	03	01	01	103	200
20	004R	0599	5	C30	062	0011	001	0	00	01	00	00	00	091	200
57	035R	0661	20	C44	107	0078	004	0	00	04	02	00	00	051	200
78	062R	0277	5	C45	076	0014	001	0	01	00	01	01	00	071	200
84	050A	2654	15	C25	026	0016	002	0	01	02	05	01	01	188	200
16	021R	0000	111	C30	020	0081	028	0	11	11	02	01	06	272	198
48	009R	1380	100	C30	055	0219	081	1	04	16	13	18	05	026	196
04	020R	0584	135	A40	074	0366	088	1	06	19	11	15	06	071	193
16	020R	1068	170	C30	020	0102	035	0	13	14	07	11	07	078	192
49	023R	3917	26	C24	057	0055	005	0	01	04	05	03	00	091	192
[illegible]	018R	1863	47	C24	47	00	[illegible]	0	01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Fig. 1

Listing of Highway Sections in descending order of accident rate per mile (from summary cards)

by the combined use of a tabulator and a summary punch. As accident data accumulated in the tabulator, totals were automatically transferred to a summary card by the second machine. Upon completion of this phase, every section of highway upon which one or more accidents had been reported was represented on one card and on which the following data appeared:

1. County
2. Route Number
3. Highway Section
4. Length of Section
5. Type of Surface
6. Width of Surface
7. Daily Vehicle Miles
8. Total Accidents
9. Fatal Accidents
10. Personal Injury Accidents
11. Property Damage Accidents
12. Manner of Collision
    a. Non-collision
    b. Pedestrian
    c. Turning Movement
    d. Angle Collision
    e. Rear-end Collision
    f. Head-on Collision
    g. Sideswipe
    h. All other types
13. Night Accidents
14. Intersection Accidents
15. Wet Pavement Accidents

At this stage, the nearly 27,000 individual punch cards were replaced with less than 4,000 summary cards. (For the year 1951)

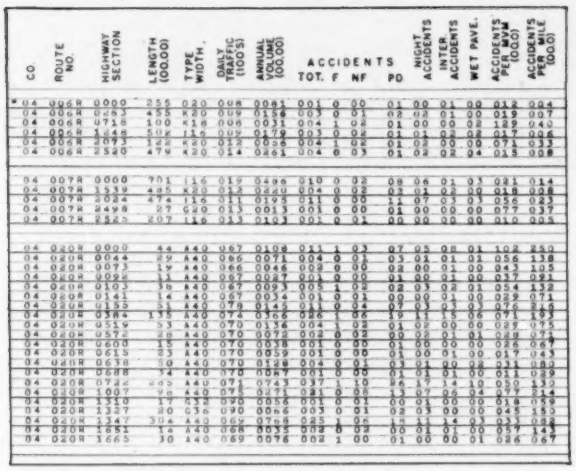


Fig. 2
Listing of all highway sections—by county and route number (from summary cards)

One more important procedural step was taken. This was the machine computation of accident rates and percentages and the automatic punching of the results on each section summary card. An electronic calculating machine was used for the purpose. The new information (in addition to the accurate location and physical data) included the following rates and ratios:

1. Annual vehicle miles in millions
2. 24-hour average volume
3. Accidents per mile of highway
4. Accidents per million vehicle miles
5. Percent night accidents
6. Percent wet pavement accidents
7. Percent intersection accidents
8. Percent non-collision accidents

Now, with such a complete set of highway section summary cards it became possible to run them through a tabulator in any desired listing by pre-sorting the cards in the desired arrangement. At this stage a printed tabulation sheet was produced, an illustration of which appears below. This example is one wherein highway sections on a statewide basis are listed in a descending order of accident rates per mile.

A second sample tabulation which, of course, is but one of many possible listings was made by routes and highway sections within a given county. Obviously a presort to pick out the desired county and then the routes in numerical order was first performed.

Even a casual review of the foregoing reproductions quickly gives the reader an understanding of the potentialities of the system. For instance, in a very short time a listing of so-called "worst" highway sections is possible, choosing the arrangement by sections, by routes or by counties. The basis of comparisons could be either accidents per mile or accidents per million vehicle miles.

Since the public is highly conscious of the actual number of accidents at a given location and is blind to the element of exposure, such a listing is of extreme value in selection of spot-corrective treatment. However, for establishment of priorities in selecting projects from the standpoint of accident frequency most authorities must consider the rate per million vehicle miles; such listings are immediately available for any choice of locations.

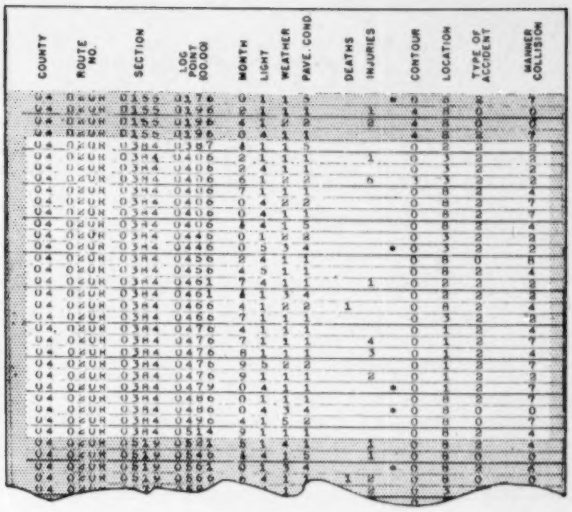


Fig. 3
Listing of individual accidents on Route U. S. 20, Section 0384, Ashtabula County

If, as has been reasonably charged, the traffic engineer has not always made full use of available accident facts, the method of tabulation described in this article at once encourages him to use the data due to the simplified tabulation available in a matter of minutes.

For example, it would not suffice to merely be able to state that a given section is more (or less) accident-prone than some other section. Instead, it becomes necessary to learn as much as possible of the details of the accident experience.

Once the section is identified, the logical question is "where within the section did those accidents occur; when; under what conditions; and what type of accidents." In the illustration below (which shows a listing of the individual accident record cards) it will be noted that the 26 accidents occurred at eleven (11) different locations and seven (7) of them were chargeable to one log point (4.06).

The manner of collisions at that point almost at once shows that traffic movements incidental to a driveway account for the lion's share of the difficulty. Somewhat the same story appears to be true at another log point (4.76). Armed with such data the traffic engineer is in a position to analyze the situation and propose corrective treatment.

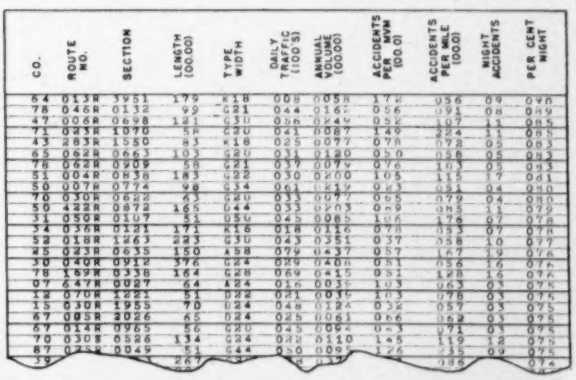


Fig. 4
Listing of highway sections in descending order of night accident percentages

(Continued on page 22)

Chicago Park District Builds An Underground Garage

By Victor G. Hofer (Mem., ITE)
Chief Planning Engineer, Ralph H. Burke, Inc., Consulting Engineer

To alleviate growing demand for additional off-street parking space in the downtown area, the Chicago Park District has started work on an underground garage which is to be located in Grant Park with a portion of the garage under Michigan Avenue. Costing about $8,300,000, this reinforced structure is being completely financed by revenue bonds of both the serial and term type. Its capacity of over 2300 cars will make it the largest garage structure built to date.

From time to time during many years, proposals have been advanced for construction of an underground garage beneath Grant Park along Michigan Avenue. Most of these proposals have taken the form of offers by private investors to build and operate the facilities for a term of years after which the improvements would become public property. They have all been predicated upon the conception that the site in question, located as it is on the boulevard arteries entering the loop and adjacent as it is to the most highly concentrated shopping center of the nation, and convenient to major hotels, extensive office buildings, and the theatre district, possesses inherent advantages as a garage site unparalleled by any other site in Chicago.

Public Need

A new conception has been added in recent years: namely, that the construction of a garage in Grant Park not only will be profitable, but also is of paramount public interest and necessity by reason of recreational facilities, events scheduled in Grant Park and to relieve traffic congestion on Park boulevards in and adjacent to Grant Park and throughout the central business district adjacent thereto. The growth in the daily use of the automobile for business needs has created a congestion in the loop which must be alleviated if time of the public is to be conserved and if our business interests and property values are to be maintained in Chicago.

With the constant addition of better highways, through the improvement, extension and creation of super highways, arterial streets and boulevards, the alarming concentration of traffic in and around the central business district will continue to increase. Off-street parking downtown is therefore a paramount public necessity.

Official cognizance of these conditions was expressed by the Illinois Legislature in passing an amendment to the Chicago Park District Act enabling the Commissioners of the Park to acquire, construct, maintain and operate public garages in and beneath parks and boulevards. Pursuant to that act the Chicago Park District on November 13, 1951 approved and adopted plans for an underground garage in Grant Park and Michigan Avenue from Randolph Street to Monroe Street.

In a recent law suit brought by the 30 North Michigan Avenue Corporation the legality of the recent legislation and other legal questions pertaining to the right of the Chicago Park District to construct the proposed garage were tested with the result that the Supreme Court of the State of Illinois rendered a decision at the May, 1952 term of court, upholding the legality of the legislation and the right of the Chicago Park District to construct said garage.

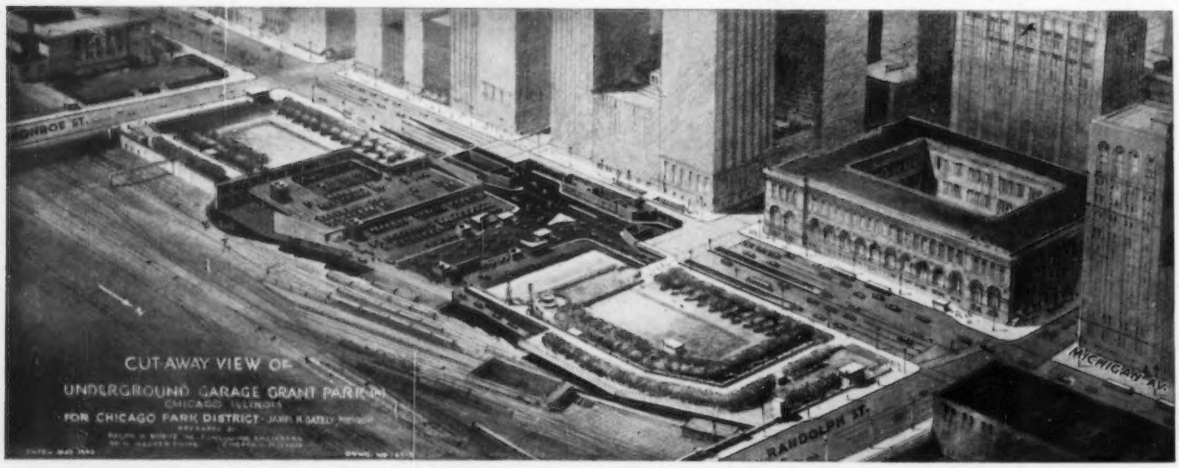


Fig. 1
Artists perspective of Chicago's Underground Garage.

Existing and Future Parking Requirements in the Northeast Quarter of the Loop

Parking facilities in the Loop area have been inadequate for many years and the demand for off-the-street parking is increasing steadily. Fig. 2, "Parking Requirements for Central Business District," illustrates the deficiency existing in off-the-street parking facilities as compared with the present and future need for parking space.

There are an estimated 315,000 people employed in the area bounded by Congress Street, the Chicago River, Michigan Avenue and Wacker Drive, and about 27% of this number or 85,000 are employed in the area under discussion in this report. Distribution of employees and floor space within the area are shown in Fig. 3, "Employee Population, Floor Area, and Daytime Garage Users by Blocks." Based on car counts, parking counts and other surveys there are about 4,500 workers in the area who drive to work, and current surveys indicate that at least 660 additional workers would drive to work if satisfactory parking space were available.

A study conducted with respect to shoppers and business callers (people seeing doctors, lawyers, merchants, public agencies, etc.) and others, indicates a demand for facilities for 4,950 shoppers' cars, 5,375 business callers' cars, and 1,120 other cars (people in pursuit of recreation, study, culture, sightseeing, etc.)

At the time the proposed garage could be put into operation the daily daytime demand for parking, in the northeast quarter of the Loop area, will be in excess of 16,600 cars. The space requirements for parking 16,600 cars per day is 8,750 parking spaces based on a 1.9 turnover of parkers as against present spaces of 5,417. Table I, "Population (Car Parkers) Located Within 5 Minute Walking Area of Grant Park North Garage During 7:00 A.M. to 7:00 P.M. Period."

The figures quoted hereinbefore represent daytime parking requirements only (7:00 A.M. to 7:00 P.M.). The extensions are computed from conservative estimates and surveys conducted recently by the Chicago Association of Commerce and Industry, and the State Street Council of Chicago. The figures do not reflect any allowance for the potential parkers who would be induced to drive their cars into the Loop with the alleviation of the parking problem in this section. The figures were computed as follows:

Workers employed in the Loop area 100% = 315,000
Workers employed in the N.E. ¼ of Loop 27% = 85,000

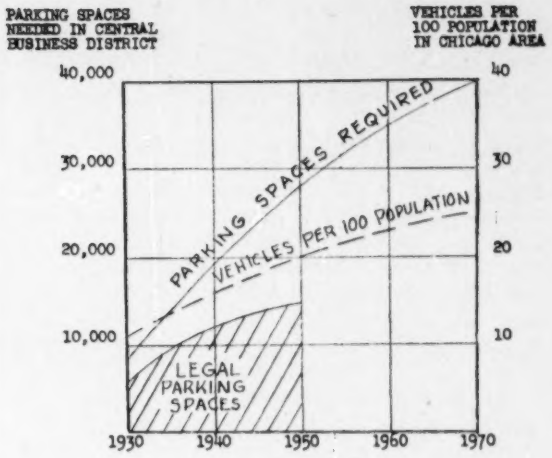


Fig. 2
Parking requirements for Central Business District

are based upon the known deficiency of space shown in numerous surveys and listed in Fig. 3 and Table I, the turnover of parkers from surveys, and hours of entry into Loop area from cordon counts.

The estimates are also based upon the present distribution of existing parking space, and principal business activities as shown in Fig. 4, "Present Parking Facilities and Principal Business Activities by Blocks." Further checks on the basis of the estimates can be made from inspection of Fig. 3.

Nighttime parking in the Loop area does not present a serious problem except in the theatre district in the vicinity of Randolph and Dearborn Streets. The northeast quarter of the Loop accounts for 65% of the estimated 30,000 theatre seats, and 50% of the estimated evening population of the Loop. Estimates indicate that the evening population is about 15% of the daytime population, and the evening vehicle traffic is about 30% of the daytime traffic. Parking requirements are approximately proportionate to vehicular traffic, and therefore the northeast quarter requires about 4,000 parking spaces based on one-half of 30% of the daytime parking demand for the entire Loop.

After six o'clock in the evening about 1,000 free curb parking spaces are made available leaving an off-the-street

No. of Cars and Classification		Present % in the N.E. ¼ of the Loop	Anticipated % Increase With Additional Available Parking	Number of Cars to be Parked
Workers Cars	16,650	27% = 4,485 Cars	15% = 675 Cars	5,160 Cars
Business Callers	14,300	30% = 4,300 Cars	25% = 1,075 Cars	5,375 Cars
Shoppers	3,350	90% = 3,000 Cars	65% = 1,950 Cars	4,950 Cars
Others	2,250	40% = 900 Cars	25% = 220 Cars	1,120 Cars

Estimates of hourly use of the garage by the above classifications of parkers were made based upon a week day daytime use by 4,875 parkers or a 2.06 average turnover with a maximum use of 2,265 out of 2,359 spaces. Peak hour entry is 725 cars and peak hour departure is 690 cars. These estimates of use, Table II, "Estimated Use of Garage for 12-Hour Daytime Period," and Table III, "Estimated Week Day Use of Garage by Type of User for 24-Hour Period," parking demand of 3,000 parking spaces to be filled by the 3,000 existing spaces in privately owned parking lots and the proposed Grant Park North Garage.

There are no extensive records of turnover, length of stay, or time of movement on evening parking, but the flat-rate charge indicates that little or no turnover takes place. Virtually, no inbound traffic occurs after 10:00 P.M. The present Monroe Street parking lot in Grant Park has

TABLE I

POPULATION (CAR PARKERS) LOCATED WITHIN 5 MINUTE WALKING AREA OF GRANT PARK NORTH GARAGE DURING 7 A.M. TO 7 P.M. PERIOD

Classification	Number of Cars to Park	Turnover	Spaces Required	
Workers	5160	+ 1.5	3450	
Business	5375	+ 2.7	2000	
Shoppers	4950	+ 1.8	2750	
Others	1120	+ 2.0	550	
	16605	+ 1.9	8750	
		Less	3000	Private space existing in area
		Less	2417	Spaces at Monroe and Goodman Parking Lots used by people in area
		Less	500	New city spaces to be built at Wacker and State
			2833	Present spaces short
			2359	New construction Grant Park North Garage
			474	Shortage in area after new construction

an evening demand of slightly less than 5% of its daytime demand.

Unofficial opinions from operators of parking lots and spot checks indicate that privately owned parking lots in the Loop area average a usage of 90% of capacity during the hours from 6:00 P.M. to 10:00 P.M. when the flat-rate charge is generally in effect. Privately owned parking lots in the treatre district are usually filled to capacity, and lots on the west and south edges average about 50% of capacity. In view of the comparatively close proximity of the proposed Grant Park North Garage to the theatre district, and the protection offered, it is reasonable to expect an occupancy of 35% of capacity or 820 cars during the evening hours. However, if curb parking were severely curtailed or abolished during the evening hours, use of the garage should increase from a 35% ocupancy to about 50% occupancy.

The foregoing analyses are in agreement with the trends shown by Fig. 2, which indicate the relation of rapidly increasing car ownership to the slowly increasing parking facilities. It is evident that the parking problem becomes more acute as car ownership increases with the relatively slow increase of capacities of privately owned parking lots.

Estimate of Use of Proposed Grant Park Garage

The estimated daytime use of the garage is 22% for workers' cars, 44% for business callers' cars, 29% for shoppers' cars, and 5% for other parkers. These estimates for the garage show that the garage will be used more by business callers than any other lots in the area, and will have lesser use by workers' cars than other lots in the area. This estimate of increased use by business callers is based upon the fact that in the nine blocks (3 blocks by 3 blocks) immediately west of the garage there are at present less than 60 off-street parking spaces, and the garage will offer "front door" parking to the numerous medical and business offices on Michigan Avenue. The garage will offer faster service than is possible in the present multi storied garages, and due to its size, space will usually be available. The decrease in percentage estimated for workers' cars is based upon the close proximity of Monroe Street lot which offers low rate parking for long time periods.

Garage Design

Fig. 1 is a cut-a-way perspective drawing to show the outline and general characteristics of the proposed garage. The structure will contain two floors and a mezzanine level with a total area of approximately 873,000 square feet and will have a parking capacity of 2,359 cars.

Ramps

Entries to the underground garage will be by two descending ramps from Michigan Avenue to the upper garage level, one of which ramps is to be located at the east curb line of Michigan Avenue between Monroe Street and Madison Street, and the other on the approximate center line of the Michigan Avenue roadway between Randolph Street and Washington Street.

Exits from the underground garage will be by two ascending ramps from the upper garage level to Michigan Avenue, one of which is to be located at the east curb line of Michigan Avenue between Washington Street and Randolph Street, and the other on the approximate center line of Michigan Avenue roadway between Madison Street and Monroe Street. Ample reservoir spaces at base of ramps are provided so that no congestion will occur at entrance or exit and so that the garage may be operated either by customers parking of cars, by attendants parking, or by a combination thereof.

Restoration of Surface

The roof of the upper level of the garage is set at approximately four feet below present grade for Michigan Avenue and Grant Park. There will be a plenum chamber above the upper level on that portion of the garage which will be beneath Michigan Avenue, and the roof of this plenum chamber will be used as the Michigan Avenue roadway. The portion of the garage under Grant Park will be covered with approximately four feet of soil to allow plant growth and the restoration of Grant Park to its present condition.

General Construction

Walls, floors and columns will be constructed of reinforced concrete. The ramps entering the garage from Michigan Avenue will be enclosed with an ornamental railing. The ramps proper will be equipped with radiant panel heating for automatic snow and ice removal. The entry

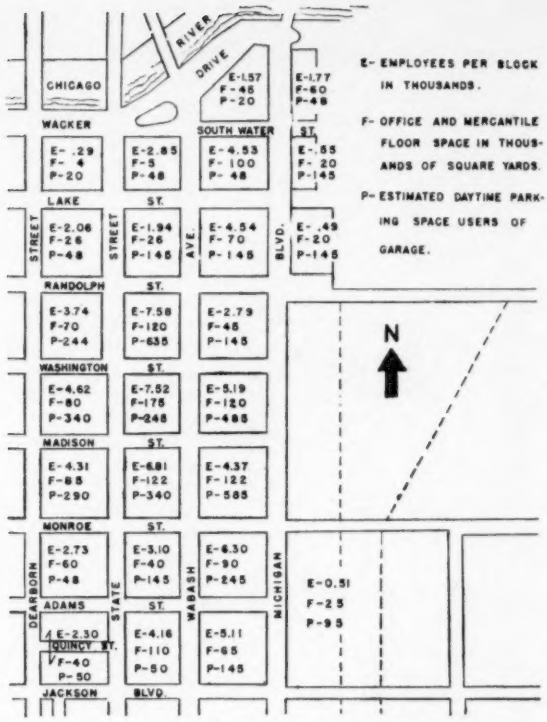


Fig. 3
Employee population, floor area, and daytime garage users by blocks.

will be determined by actual test surveys conducted with portable carbon monoxide instruments.

All columns, ramps, grades, curvature, aisles and spaces are such as to be adequate and safe for present and future model cars. Because there are only two main levels involved the ramps have been designed to allow for speeds greatly in excess of those possible in the average multi-story garage as the loss of floor space resulting from the bigger ramps is nominal in a two-story garage. The speed of parking and pickup by attendants will be greatly increased due to one floor operation for this type of service. Because of the self-parking features all aisles, columns, spaces, and ramps have been designed to accommodate the self-parker, and are therefore capable of permitting greater speeds than can be used in the conventional parking garage.

Parking trials by non-professional drivers were held in order to determine the best garage layout for self-parking. These trials combined with the trend toward wider cars and the experience of the Chicago Park District which dictates plenty of space for opening car doors were used as the basis for the 29-foot column spacing. Generous allowances for car door openings permit faster circulation, cut down nuisance damage, and enable people carrying packages to have easy access to their cars.

Estimate of Cost

The estimate of cost is based upon prices current for similar construction in May, 1952. It is based upon the general plans previously mentioned and covers all essential items for construction of the garage, improvements to Michigan Avenue roadway, restoration of the park area, and

TABLE II

ESTIMATED USE OF GARAGE FOR 12 HOUR DAYTIME PERIOD

Turnover	1.5 Workers		2.7 Business		1.8 Shoppers		2.0 Others		2.06 Av.
	In	Out	In	Out	In	Out	In	Out	Accumulation
7-8 A.M.	100		35	25	20		10		140
8-9	525	10	120	45	60		20		810
9-10	275	20	225	90	120	55	10	5	1270
10-11	20	20	235	90	170	55	10	5	1535
11-12	20	30	250	100	135	60	10	5	1755
12-1 P.M.	20	40	225	90	165	55	15	5	1990
1-2	20	40	245	95	185	60	15	5	2255
2-3	20	60	230	270	140	180	20	10	2145
3-4	15	95	210	275	155	185	20	15	1975
4-5	30	175	195	280	140	185	35	20	1715
5-6	10	225	140	250	80	165	65	50	1320
6-7	10	165	50	100	30	150	20	30	985
Total	1065	880	2160	1710	1400	1150	250	150	

and control center, waiting room, locker rooms and toilets will be finished in glazed tile, and glass set in aluminum.

Walls and fire doors will divide the garage into fire protection areas adequate for two hour protection. All sections will have access to the outside. Service and emergency stairways will be of steel pan construction with concrete treads. Escalator stairs will be provided at Randolph Street, at Washington Street and at Monroe Street for easy egress of patrons to the west sidewalk of Michigan Avenue.

Mechanical Ventilation

The garage will be ventilated by mechanical means, providing for a maximum change of air every four minutes. A programmed rate of air changes for all periods of a day

proper relocation of utilities. The garage will be ready for operation at the price estimated. Total estimated cost, $8,300,000, for 2359 parking spaces amounts to approximately $3,515 per parking space. This cost per space is based upon 29 foot by 29 foot bays which will not become obsolete due to future increased car sizes, and which allow for self-parking by any average car driver.

Maintenance and Operation, Revenues and Financing

The combination attendant and self-parking garage will have operating expenses estimated at $389,618 annually based on present labor rates for Chicago Park District employees plus a 10% adjustment and present material and

TABLE III

ESTIMATED WEEK DAY USE OF GARAGE BY TYPE OF USER FOR 24 HOUR PERIOD

	Workers		Business		Shoppers		Others		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	Accumulation
Previous Day	50		20				10		80		80
7-8 A.M.	100	20	35	25	20		10		165	45	200
8-9	525	20	120	45	60		20	10	725	75	850
9-10	275	30	225	100	120	55	10	5	630	190	1290
10-11	20	20	235	100	170	55	10	5	435	180	1545
11-12 P.M.	20	30	250	100	135	60	10	5	415	195	1765
12-1	20	40	225	90	165	55	15	5	425	190	2000
1-2	20	40	245	95	185	60	15	5	465	200	2265
2-3	20	60	230	270	140	180	20	10	410	520	2155
3-4	15	95	210	275	155	185	20	15	400	570	1985
4-5	30	175	195	280	140	185	35	20	400	660	1725
5-6	10	225	140	250	80	165	65	50	295	690	1330
6-7	10	165	50	100	30	150	20	30	110	445	995
7-8	10	85	10	90		100	250	100	270	375	890
8-9	10	40	10	90		100	300	50	320	280	930
9-10	10	60		80		50	110	30	120	220	830
10-11				80				300		380	450
11-12 A.M.				80				220		300	150
12-1				20				50		70	80
1-2				10						10	70
2-3											
3-4											
4-5	10								10		80
5-6	30	30							30	30	80
6-7											
	1185	1135	2200	2180	1400	1400	920	910	5705	5625	
Total											
Less previous day	50	50	20	20			10	10	80	80	
24 Hr. Total	1135	1085	2180	2160	1400	1400	910	900	5625	5545	

supply charges. Expenses of $389,618 for total operation, Table IV, can be divided into $299,618 for garage operation on self-parking basis plus $90,000 for car hikers labor and uniforms. These expenses are based on 24-hour operation for 365 days a year.

Due to the operation of the garage purely as a storage unit with no gas sales, repairs or washing service, the ratio of employees to total spaces is lower than in operations where a large staff is necessary for work other than parking.

Daily operating costs per stall based on various periods for a year are as follows:

	$299,618 Self Park Only		$389,618 Proposed Self Plus Attendant Parking	
	2,255 Stalls Estimated Occupancy	2,359 Stalls Full Occupancy	2,255 Stalls Estimated Occupancy	2,359 Stalls Full Occupancy
250 days	$.53	$.51	$.69	$.66
275 days	.48	.46	.63	.60
300 days	.44	.42	.58	.55

Bond debt service charges on a daily basis per stall for various periods for a year are as follows:

($51.0192593 per M x $8,300,000 = $423,460 Annual Debt Service) with Debt Service assumed for thirty-year 3% Revenue Bonds·

	2,255 Stalls Estimated Occupancy	2,359 Stalls Full Occupancy
250 Days	$.75	$.72
275 Days	.68	.65
300 Days	.63	.60

Rates for short time self-parking were set at 20 to 25 cents less than present rates for attendant parking, and rates for attendant parking were set at 5 to 10 cents less per period than present rates in the area. Long term parking was set at 220% of present public self-parking rates, and 65% of present attendant parking rates; long term attendant parking rates were set at about 95% of present monthly rates on a daily basis. Table V lists present average parking charges in the area and proposed charges at the garage, and Table VI shows "Estimate of Yearly Revenue at Grant Park North Garage," including Debt Service and Ratio of Net Operating Income to Debt Service.

The estimated yearly return per garage space must be $435.00 in order to meet expenses and amortization with a 50% safety factor or $1.45 per space per day based on a 300 day year. Average parking time is approximately three hours and at the average $.78 rate for this period a turnover of 1.9 daily for 2,359 spaces is needed. Based on past experience of parking lots in the area this daily turnover can be expected. Past surveys suggest that rates be kept high for periods over three hours in order to discourage long time parkers and increase turnover. The rates suggested are not exceedingly high for long time parkers because it is believed that the garage will not be able to compete with the Monroe

TABLE VI

ESTIMATE OF YEARLY REVENUE AT GRANT PARK NORTH GARAGE

Rate schedule as follows:			
5 A.M. to 6 P.M.			
1 Hour	Self park $ .45	Attendant park	$ .60
2 Hours	Self park .60	Attendant park	.75
3 Hours	Self park .75	Attendant park	.90
Over 3 Hours	Self park 1.10	Attendant park	1.25
6 P.M. to 5 A.M.	Self park .60	Attendant park	.75
Use estimate 5 A.M. to 6 P.M.			
1095 workers	@ $1.10 x 250 days		$ 301,125.00
3710 others as follows:			
670 Self park	@ $ .45 x 300 days		$ 90,450.00
780 Self park	@ .60 x 300 days		140,400.00
315 Self park	@ .75 x 300 days		70,875.00
100 Self park	@ 1.10 x 300 days		33,000.00
670 Attendant	@ .60 x 300 days		120,600.00
780 Attendant	@ .75 x 300 days		175,500.00
315 Attendant	@ .90 x 300 days		85,050.00
80 Attendant	@ 1.25 x 300 days		30,000.00
4805	Subtotal Daytime Revenue		$1,047,000.00
Estimate of night and Sunday revenue:			
600 Self park	@ $ .60 x 350 days		126,000.00
220 Attendant	@ .75 x 350 days		57,750.00
820	Subtotal Nights and Sundays		$ 183,750.00
	ESTIMATED TOTAL YEARLY REVENUE		$1,230,750.00
For estimate purposes reduce anticipated receipts by 15%			184,600.00
Gross Income			$1,046,150.00
Less expenses of operation			389,618.00
Amount Available for Debt Service			$ 656,532.00
Annual Debt Service ($51.0192593 per M)			$ 423,460.00
Ratio of amount available for Debt Service to Debt Service			1.55 to 1.00

TABLE IV

ESTIMATE OF YEARLY EXPENSES FOR

GRANT PARK NORTH GARAGE

Operation and Maintenance			
1 Manager	@ $5,280	$ 5,280	
2 Assistant Managers	@ 3,780	7,560	
14 Cashiers	@ 3,120	43,680	
8 Checkers	@ 3,384	27,072	
20 Hikers (Garage Attendants)	@ 3,588	71,760	
6 Male Janitors	@ 3,636	21,816	
2 Female Janitors	@ 3,324	6,648	
4 Engineers	@ 5,640	22,560	
1 Electrician	@ 5,640	5,640	
	Labor Subtotal	$212,016	
	10% Labor Overhead	21,202	
	Reserve for Wage Adjustment	23,300	
	Subtotal Labor	$256,518	
Material and Supplies			
Uniforms and Laundry		$ 5,000	
Janitors' Supplies		1,000	
Light Bulbs		8,000	
Electricity		50,000	
Heat		7,600	
Stationery		500	
Water		2,000	
Telephone		1,000	
Insurance		10,000	
Miscellaneous—Lane markings, etc.		10,000	
Contracted Building Maintenance		16,000	
Depreciation on Equipment $20,000 @ 10 years		2,000	
	Subtotal Material and Supplies	$113,100	
	Total Operation and Maintenance	$369,618	
Park District Administration Expense		20,000	
	Total Expense	$389,618	

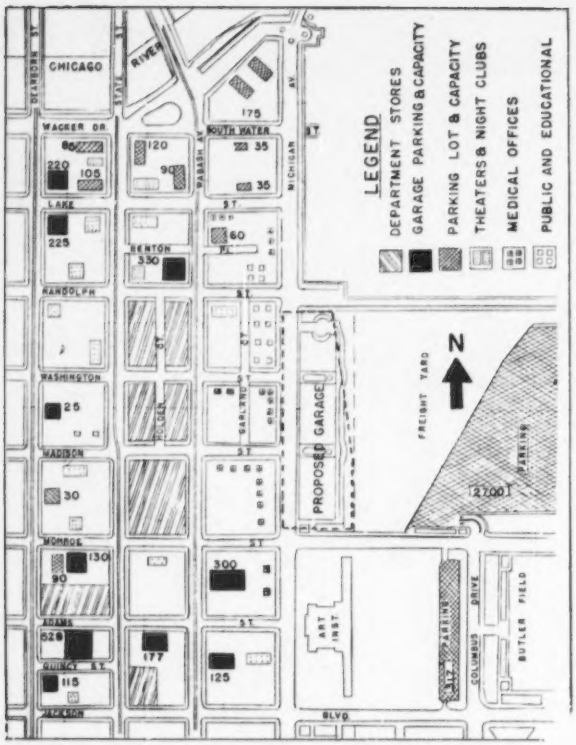


Fig. 4

Present parking facilities and principal business activities by blocks.

TABLE V

PARKING CHARGES IN NORTHEAST SECTION OF LOOP AREA AND PROPOSED GRANT PARK NORTH GARAGE RATES

	Present Charges	Proposed Garage Charges	
	Attendant Parking	Attendant	Self
Period	(Mean Rate)	Parking	Parking*
1 Hour	$ .65	$ .60	$ .45
2 Hours	.82	.75	.60
3 Hours	.97	.90	.75
Additional per hour	.20		
9 Hours	1.79	1.25	1.10
Monthly Rate	28.50		
6 P.M. to 5 A.M.	.82	.75	.60

*The only existing off-street self-parking facilities near the area are Monroe Street lot which has a daily rate of $.50, and the Goodman lot which has a monthly rate of $20.00. Street lot for long time customers at the proposed charge of 220% of present Monroe Street rates.

If in actual practice it is found that long time parkers are taking over the garage, rates can be adjusted upward to correct the situation. Past surveys have shown that about 50% of all workers in the Loop area park 3½ hours or less and average a turnover of about 1.5; assuming that the total garage would be occupied by such long time parkers at 1.5 turnover on the self-parking rate of $1.10 for a 300 day year there would still be a return of $1.65 per space which would be more than the $1.32 per space needed daily for a self-parking garage to meet all expenses plus a 50% safety factor for bond interest and amortization. Even if a 250 day year for 2,359 spaces at 1.5 turnover on $1.10 was used as total revenue it would bring in $1.65 against a self-parking garage expense and amortization of $1.575 with 50% safety factor for the bonds.

The Monroe Street lot has consistently averaged over 1.5 turnover of all stalls annually on a 250 day basis, and during the past two winters outdoor parking conditions have been extremely unfavorable.

Alaska Highway Traffic Increased 50 Percent Over 1951

Traffic on the Alaska Highway this year has increased by nearly 50 per cent over the same period in 1951. During the first four months of 1952, some 5,885 automobiles carrying a total of nearly 15,000 persons travelled this wilderness route, and all indications point to the busiest year in its ten-year history.

The total traffic on the highway last year was 23,406 automobiles, with 43,238 persons carried. If the present gain continues during the summer months, it is expected that more than 50,000 vehicles will use the Alaska Highway during 1952.

The route winds for 1514 miles through some of the finest fish and game country on the North American continent. Although not paved, it is a gravelled all-weather highway on which good road alignment, grades and sight distances make possible an average 300 miles per day of unhurried driving.

The highway's latest improvement project is the new steel and concrete Donjek Bridge, 200 miles northwest of Whitehorse.

PLEASE MENTION

TRAFFIC ENGINEERING

When Writing

To Advertisers

By Bryan Wilson (Mem., ITE)
Traffic Engineer, Wisconsin Division, AAA
Madison, Wisconsin

A Centroidal Method for Locating Parking Lots

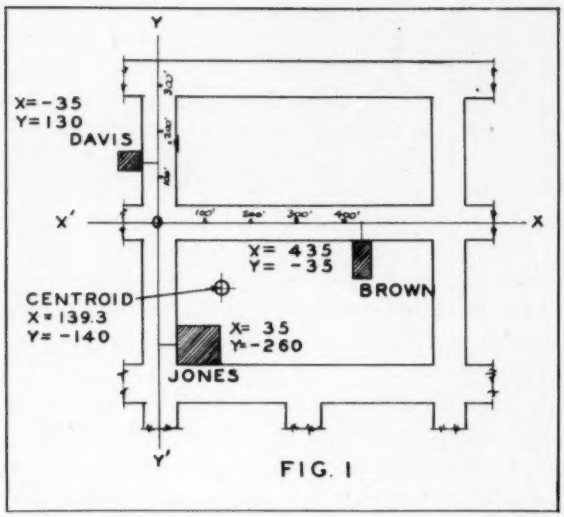


FIG. 1

Though there are numerous methods of locating sites for off-street parking facilities, each of which no doubt has its merits, the one that seems best, most economical and surest to traffic engineers of the Wisconsin Division of the American Automobile Association is what we call the "Centroid of Parking Desire" method. This technique, as adopted for our use, varies but little from the standard submitted by the Bureau of Public Roads, the variation being that we do not use the distance a car is parked from its destination as a lever arm: instead, we use the total number of identical destinations as a lever arm.

We reason that every customer would (1) like to drive in at the front entrance to a store, be handed his merchandise, and drive out the rear—all without getting out of his car. (2) As the next most favorable alternate, the customer would like to park in a stall at the curb directly in front of the entrance to the business he intends to patronize. (3) Any other parking stall that the customer might be forced to occupy is of no importance from a *desire* angle, but is merely a combination of good or bad luck, and is a silent protest against the fact that the curb will rarely ever satisfy parking demands.

According to our method, it is unimportant whether a man is parked half a block or half a mile from his destination, except as it shows demand for parking space. We don't philosophize on whether or not a long walk is good for the digestive processes or not. We simply know that if he's parked a half mile from his destination, the customer is very wrathful; and that it isn't his *desire* that he is thus parked, but his *bad luck!* Therefore, we do not use *luck* as a lever arm, but, instead, his *desire* (destination)!

While most traffic engineers have read articles relating to the centroidal method of locating off-street parking facilities, few have definite ideas as to how to utilize this method in an actual field test. It is with the idea that perhaps many traffic engineers would like to read an article giving a step-by-step account of how to proceed that prompts this article.

Here is the way we're conducting such surveys in such progressive and busy cities as Green Bay, Sheboygan, Whitefish Bay and other cities in Wisconsin:

1. Determine the primary business district of the city by inspection.

2. Prepare a map of the primary business area, scale: 1″ = 100′, and plat on it the location and name of each place of business.

3. If the business section is large, it is obvious that no one parking lot could be so located as to be practical for the entire area. Therefore, divide the section into areas, each area about three blocks square. Establish a point of origin by means of "X" and "Y" lines in each area, and locate each business place by coordinates measured from the point of origin. Distinguish the various areas by letters, as: Area B; Area C, etc. Number each block in the area and each parking stall in each block.

4. Conduct an Origin and Destination survey at the curb. Assign each "interviewer" the number of stalls in a block which he can satisfactorily cover—usually eight to sixteen stalls—and give him field data sheets giving: (a) location of interviewer; (b) time each car parks and leaves a stall; (c) time parked; (d) origin; (e) destination (this must be expressed in terms of the local business places at which the customer intends shopping); (f) number of blocks cruised before finding parking stall.

Personnel for such a survey can usually be furnished by a civic club such as the Junior Chamber of Commerce, Lions, American Legion, or Boy Scouts, High School Driver Training classes, etc. This being a project of local interest, most such organizations are eager to have a part in the work.

5. Prepare a form to take care of analysis. An example is an arrangement such as this:

Name of Business	Coords. X	Coords. Y	No. Samples	Weighted Coords. X	Weighted Coords. Y	Summation X	Summation Y	Divide By Total Samples X	Divide By Total Samples Y
Davis Grocery	—35	130	25	—875	3250				
Brown Cleaners	435	—35	50	21750	—1750				
Jones (dime store)	35	—260	100	3500	—26000	24375	—24500	139.3	—140
			175	24375	—24500			Centroid	

Thus the center or centroid of desired parking as shown in the above example (see Fig. 1) is found to be at the location X = 139.3, Y = —140. If the centroid chances to fall on a street or on top of a new ten-story structure where, in either case, it is obviously impossible to construct a parking lot or garage, simply throw a circle of 500′ radius around the centroid. Any available property within the enclosed area of the circle will serve the purpose.

The reason 500′ is chosen as a radius is that persons will walk from any lot within that area to their destination. This statement is based on an opinion poll conducted by the AAA in numerous cities of varying sizes in which it was found that, where parking is free, persons are willing to walk up to 2½ blocks for parking of one hour or less; up to 3½ blocks for parking of from two to three hours; and up to 6½ blocks for all day parking. Therefore, based on these figures and on our own studies, the figures locating the centroid are well within willing walking distances of destinations in the area the parking lot is to serve.

OHIO'S ACCIDENT TABULATION TECHNIQUE

(Continued from page 13)

Furthermore (again as an example of one of the possible uses), suppose some agency wishes to learn what percent of all accidents occurred during hours of darkness in 1951, on those highway sections with accident rates per mile of 20.0 or higher. The illustration below immediately shows some sections wherein the ratio of night accidents exceeds 70 per cent. Such data would be valuable when evaluating the effectiveness of reflectorization of signs and pavement marking or in outlining selective enforcement.

Another example of use might be pointed out. A national magazine recently listed some of America's worst roads from the standpoint of accidents. For Ohio a certain road between given terminal points was listed. The question was naturally raised "was this the worst accident road in Ohio?" The accident records were at once called into service and in a very few minutes it was found that the route mentioned in the magazine article was not even in the running since there were 73 other sections where the accident rate per mile was higher. Furthermore, there were 415 sections with an accident rate per million vehicle miles greater than the listed section.

These are just a few of the multiplicity of applications of Ohio's new accident record system.

As stated earlier, full use of the system has not yet been explored; nevertheless, its potential value has been fully recognized—with particular reference to traffic engineering techniques.

Ohio's system has been acquired at a very moderate cost. For example, the total machine time consumed in the preparation of summary cards and the calculation of rates amounted to 16 days. The wide latitude of usefulness of accident data by many branches of the Department of Highways easily justifies the slight additional man-hours required to achieve the system. It is fully expected that, with the advent of Ohio's new Financial Responsibility law and the consequent increase in reports received, the system described herein will become more and more useful and economical to utilize.

SOMETHING NEW IN OFF-STREET PARKING

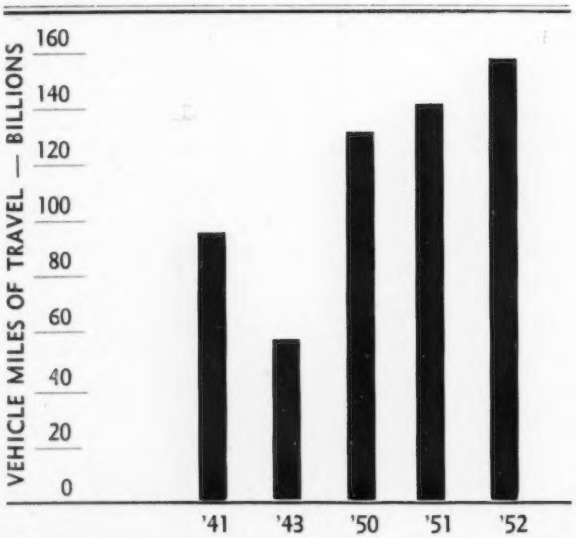
(Continued from page 11)

5. The system might not work well in a city much smaller than Nashville as there must be merchants enough interested to share the burden of subsidy, and provide sufficient volume of traffic to make operation reasonably efficient. Volume cannot be augmented by delivery to points other than the stores of associated merchants, in fairness to merchants.

Some other points to be noted in connection with such a service are as follows: 1. Hours of operation must conform to store hours. 2. Service is adapted for the use of only a small proportion of total drivers where there is community of interest between them and a small number of merchants. 3. Use of the type of lot utilized adds to available parking facilities without loss of taxable property in the downtown area. 4. Traffic wise, the system has the advantage of diffusing the discharge of cars throughout the downtown area.

That Over-Th-Hill parking has filled a need in the community is evidenced by the unanimity with which merchants have stayed with it and been willing to put their money in it. Part of their reason for this is indicated by the fact that fully forty per cent of the license plates on cars using the service are from outside the county in which Nashville is located. It would appear from this that Over-Th-Hill is fulfilling the purpose for which it was designed and is effectually serving Nashville's shopping area.

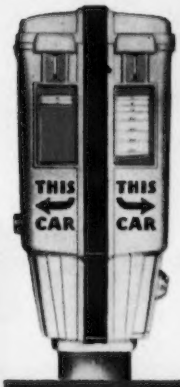
Traffic Trends



TRAVEL ON RURAL ROADS FOR FIRST SEVEN MONTHS OF 1941, 1943, 1950, 1951 and 1952

Based on Bureau of Public Roads Data

MI·CO



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at the lowest cost

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The generally accepted theory that you cannot buy the best at the lowest cost does not hold true in parking meters. We realize this is a challenging statement, but we are prepared to prove it. All we ask is that you compare the purchase price of either the manually operated or the automatic twin MI-CO parking meter with the purchase price of other makes. Then compare MI-CO performance, maintenance and earnings records with all other meters. We are confident such a comparison will prove our contention that "MI-CO offers the best parking meters at the lowest cost."

And by manufacturing two types of meters, the popular manually operated MI-CO, and the equally famous automatic twin, MI-CO is in a position to meet the parking meter requirements of *every* community. We'll be glad to send engineering and construction details, together with prices and performance records for both types of meters.

MI-CO METERS, 241 Court Street, Covington, Kentucky

Division of The Michaels Art Bronze Co., Inc.

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(Continued from page 9)

substituting vertical movement within the building for trucking over the City streets. The upper floors are also equipped with truck elevators, permitting inside, off-street loading and unloading of street trucks at each floor.

Similar massive buildings for the handling of over-the-road motor freight have been constructed in Downtown Manhattan and in Newark, New Jersey. The former is adjacent to the Holland Tunnel and the latter to the main arterial highways of New Jersey.

In our marine terminal program, we have designed and built sheds with sufficient space within the terminals themselves to accommodate highway trucks without interference with the cargo assembly and handling. Forty to fifty per cent of our ship freight at New York moves by truck on the land side.

In brief, our facilities have been designed to meet the motor age in which we now live. It has been possible to meet the demand for increased movement by highway without throwing an intolerable burden on the City streets. Other agencies within the New York Metropolitan Area, charged with responsibilities for developments wholly within one state or municipality, are bending their energies towards the same objective. The Triborough Bridge and Tunnel Authority, which recently completed the Brooklyn-Battery Tunnel, has constructed a 1050-car garage at the Manhattan plaza. The same agency will build an airline bus terminal near the Manhattan end of the Queens Midtown Tunnel for airline buses, operating to and from LaGuardia and New York International Airports, and is incorporating a public parking space for private cars in this structure.

In our own planning, we are also cognizant of the need for reducing the pedestrian hazard from motor vehicles. One of the most recent projects at the easterly end of the George Washington Bridge contemplates a series of off-street bus loading and unloading platforms connected by pedestrian underpass with the subways. Thus a stream of bus passengers, amounting to 8,000 per hour, night and morning, may walk between the subway and interstate buses without crossing the heavily used intervening street at grade.

The planning which goes into all of these projects provides facilities to accommodate the growing needs of highway traffic, so as to avoid congestion of city streets and pedestrian hazards. Moreover, the elaborate plazas, direct interchanges with other arterial highways, and carrier terminals, are being financed as part of an overall self-supporting scheme which places no burden on the municipalities.

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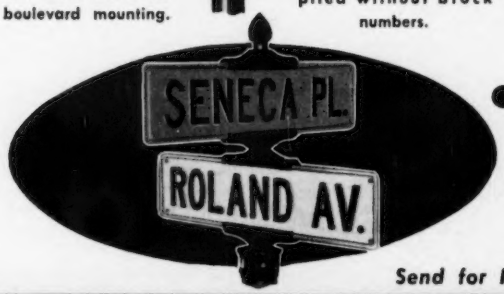

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TRAFFIC NEWS

23rd Annnual ITE Meeting Attracts Large Attendance

Joining some sixty other engineering societies holding their meetings during the greatest convocation of engineers the world has so far seen, in honor of the 100th anniversary of the founding of the ASCE, the Institute of Traffic Engineers held its 23rd annual meeting at the Hotel Sherman, Chicago, Illinois, September 8-11, 1952.

Although the meeting did not officially get underway until Monday, September 8, a large number of ITE members had registered and were on hand when the Headquarters Room opened Sunday afternoon at 5 o'clock. A meeting of the Traffic and Operations Committee of the Highway Research Board, whose personnel includes many ITE members, began at 10 o'clock Sunday, and lasted until 5 o'clock. The Institute's Board of Direction met at 3:00 P.M. and continued in session until 10:30 P.M.

Monday morning was devoted to ITE committee meetings as called by the various chairmen. The kick-off luncheon at noon Monday with President Nathan Cherniack presiding over the 168 ITE members in attendance got the meeting off to a fine start. First off, the management of the Hotel Sherman presented a 23rd annual meeting gavel to Mr. William R. Marston, President of the Midwest ITE Section, official host. Section President Marston relayed the gavel to National President Cherniack for the conduct of all subsequent sessions.

Mayor Kennelly who had planned to attend was at the last minute detained by official business. His telegraphic regrets deputized Mr. Ralph Gross to act in his behalf in extending the city's official welcome to the delegates. Chicago Park District Chief Engineer Black was introduced and outlined some of the Park District's problems and projects now underway.

President Cherniack introduced Mr. Ralph A. Budd, Chairman of the Board of the Chicago Transit Authority, who entertainingly spoke on the relationships

Pictures of 23rd Annual Meeting Activities taken by the Institute's "official" photographer Henry A. Barnes, City Traffic Engineer, Denver, Colorado. This is the fifth annual ITE meeting Hank Barnes has covered for TRAFFIC ENGINEERING, and again proves he's as good with a camera as he is with traffic.

[1] President Nathan Cherniack opens the Business Meeting while Executive Secretary Tim Todd (left) waits to record the proceedings.

[2] Newly elected Director Paul Ristoph (left) and Messrs. Kenneth King, Robert Holmes, and Kenneth McWane (right) enjoy watering together in Headquarters room.

existing between the various traffic engineering organizations in the City of Chicago.

Meanwhile, some 75 of the women registrants had enjoyed the "Get-Acquainted Brunch" at 11:00 A.M. in the Louis XVI Room. At 1:00 o'clock they took buses for a tour of the North Shore, and at 4:00 P.M. enjoyed a cocktail party at the Tam O'Shanter Country Club.

At 2:00 P.M. the Annual Business Meeting got underway. After appointment of the Committee on Resolutions and announcement of the appointment of the Committee of Election Tellers, which was already at work, President Cherniack reviewed the Institute's activities since the meeting in Los Angeles. He reported that the new technical organizational structure had been completed during the year, work assignments made, and all technical committees were functioning; although, some had done no more than formally organize their work asignment.

Mr. Harry Porter, Jr., Secretary-Treasurer, reported on financial operation, concluding his report with the observation that the Institute would close the fiscal year within the balanced budget which had been adopted in January, 1952.

The Executive Secretary reported on the activities of the national Headquarters office during the year. (The report is printed in the Secretary's Column).

Mr. F. B. Crandall, head of the Technical Division, introduced Mr. Light B. Yost, Secretary of the Technical Council, who rendered a comprehensive report of technical committee activities. Each department head was introduced and made brief verbal reports.

The head of the Administrative Division, Mr. Donald M. McNeil, introduced the chairman of three special committees. Chairman Joseph L. Wehmeyer presented the report of the Special Committee on Annual Meetings. Chairman Merwyn A. Kraft read the report of the Special Committee on Ways and Means of Meeting the Finances of the Institute. Chairman Robert S. Holmes presented the report of the Special Committee on New Membership.

Chairman Ralph F. Gross of the Election Tellers reported the results of his committee's canvass of ballots for the coming administrative year and President Cherniack declared the following officers elected: F. B. Crandall, President; Donald M. McNeil, Vice-President; Harry Porter, Jr., Vice-President; Charles W. Prisk, Secretary-Treasurer; J. Carl McMonagle, Director for two years, District 3; Paul L. Ristroph, Director for two years, District 5; Joseph E. Havenner, Director for two years, District 6.

[3] Midwest Section President William R. Marston, Chicago Park District Chief Engineer Black, General Chairman of Local Arrangements Committee Leslie Sorenson, and Chicago Alderman Young, pictured at the Speaker's Table at the opening luncheon.

[4] The Institute's first President, Honorary Member Ernest P. Goodrich, approvingly watches the installation of the newly elected 14th president, F. B. Crandall, as Sven Kansman (left) and R. A. Overmeyer observe over his shoulders.

[5] ITE Member Margaret Woolverton looks serious during the banquet.

[6] Bob Holmes accedes to Banquet audience's demand to "stand up" by mounting a chair upon receiving from President Crandall (left) scroll for Meritorious Service awarded him by ITE Board of Direction.

[7] Ralph F. Gross, Traffic and Transit Engineer, City of Chicago (standing) and Professor Theodore M. Matson, Director of the Yale University Bureau of Highway Traffic, join in some close harmony at an informal session in the Headquarters Room.

At 10:00 A.M., Tuesday, President F. B. Crandall opened the first general session comprised of a panel discussion by the ITE Committee on Philosophy and Principles of Traffic Engineering on the theme "Higher Standards in Traffic Engineering." Chairman Lloyd F. Rader and Messrs. Martin E. Bruening, Theodore W. Forbes, Taylor D. Lewis and Professor C. C. Wiley, gave an account of the objectives toward

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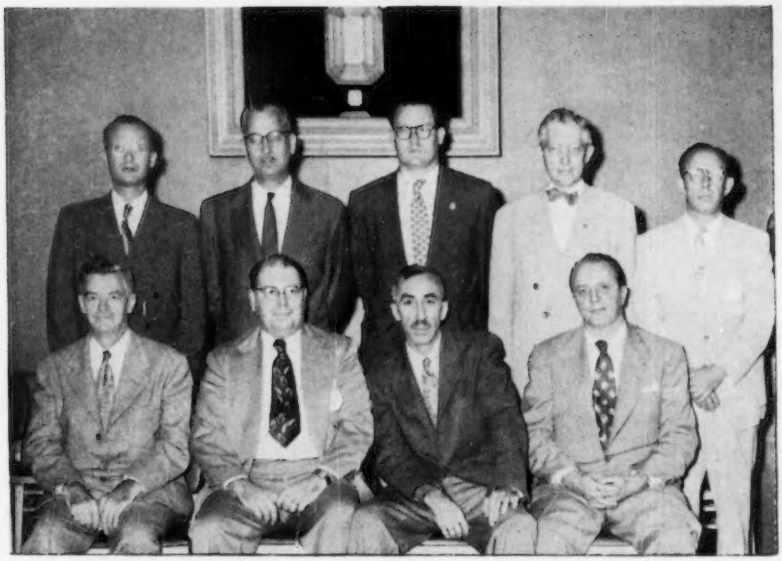


Nine of the eleven members of the Board of Direction of the Institute of Traffic Engineers for administrative year 1952-53. Left to Right: (seated) Immediate Past President Nathan Cherniack; Vice-President Donald M. McNeil; President F. Bruce Crandall; Vice-President Harry Porter, Jr.; (standing) Director District 5, Paul L. Ristroph; Director District 1, Theodore M. Matson; Director District 6, Joseph E. Havenner; Director District 4, J. Edward Johnston; Director District 3, J. Carl McMonagle. Director John B. Ecker and newly-elected Secretary-Treasurer Charles W. Prisk were unable to be present when the picture was taken.

which all traffic engineers strive, and held the interest of the 225 strong audience for two hours.

The first technical session with the theme "The Economics of Traffic Planning" opened at 1:30 P.M., Tuesday, with Professor Ladis H. Csanyi presiding. Mr. Walter P. Hedden, Director of Port Development Department, Port of New York Authority, outlined the numerous multi-million dollar projects providing better traffic facilities completed or contemplated by the Port of New York Authority. His paper appears elsewhere in this issue. The "Costs of Traffic Inefficiency" was the subject of the paper presented by Mr. Wesley Bellis, Chief, Bureau of Traffic Safety Research, New Jersey Highway Department. There followed a panel discussion on "Financing Street Transportion Plans," moderated by D. Grant Mickle, Director, Traffic Engineering Division, Automotive Safety Foundation, with the other panel members being:

Messrs. Matthew Carey, Municipal Finance Consultant, of Detroit; M. L. Davis, Director of Public Services, Akron; Ladislas Segoe, Consulting Engineer, Cincinnati; John H. Witherspoon, City Controller, Detroit.

The second technical session with a theme of "Developing the Traffic Plan" was held Wednesday morning during which presentations "City Planning Aspects of Traffic Engineering" by Ladislas Segoe of the firm Ladislas Segoe & Associates; "The Role of Expressways in Relieving Urban Traffic Congestion" by Joseph Barnett, Chief, Urban Highway Branch, U. S. Bureau of Public Roads; and "A Comprehensive City Traffic Plan," Lloyd M. Braff, City Traffic Engineer, Dallas, Texas, were heard.

The third technical session was devoted to the theme "Selling the Traffic Plan" and was comprised of lectures "Effective Speaking for Engineers" by Dr. Karl F. Robinson, Chairman of Speech Education, Northwestern University; and Dr. Daniel R. Lang, Professor of Business Writing, Northwestern University, on "How to Prepare Professional Reports."

The fourth technical session Thursday morning was devoted to "Traffic Engineering Techniques" and consisted of three panel discussions. The first was "Sufficiency Ratings for Urban Streets" directed by Gordon Gravelle, Traffic Engineer, Automotive Safety Foundation. The second, "One-Way Streets," directed by George W. Howie, City Traffic Engineer, Cincinnati, Ohio, and the last, "The Parking Problem in Residential Areas," directed by Wilbert F. Watkins, Director of Traffic Engineering, Louisville, Kentucky.

All technical sessions were well received with attendance ranging from 225 down to 125 at the closing session.

The banquet, held Wednesday night, was again the high spot of the Annual Meeting. Mr. Leslie Sorenson serving as toastmaster, introduced the newly-elected officers and directors and the principal speaker of the evening. President Crandall as one of his first official acts awarded commendatory scrolls for meritorious service to former Executive Secretaries Robert S. Holmes and Fredrick W. Hurd and to retiring President Nathan Cherniack.

Past President Wilbur S. Smith, acting for Chairman Harry E. Neal of the Past Presidents' Award Committee who was unavoidably absent, announced that the 1952 Certificate of Merit had been unanimously awarded to Mr. Edward M. Hall, Traffic Engineer for San Diego County, California, for his research paper "Intersectional Delay—Signal vs. Four-Way Stop." Since professional duties kept Mr. Hall from attending the meeting, Mr. James E. Reading, Traffic Engineer, San Diego, was deputized to convey the certificate and the congratulations of the assembly to him.

The highlight of the banquet, which was attended by 338 men and women, was the speech of Dr. J. O. Christianson, Superintendent of the University of Minnesota, School of Agriculture, speaking on the need of learning to live together in good will.

The 23rd Annual Meeting was closed with a luncheon at noon, Thursday, September 11, during which reports were received and five resolutions (printed elsewhere) were passed.

At this final meeting the decision of the Board of Direction confirming Hotel Statler, Buffalo, New York, as the site of the September 28 through October 2, 1953 Annual Meeting; and the selection of Kansas City, Missouri, as the site of the 1954 Annual Meeting was announced.

Since financial considerations forced the Board of Direction to order suspension of the publication of the Institute's annual Proceedings, all of the formal written papers presented at the technical sessions will be carried in subsequent issues of Traffic Engineering under the general head of "23rd Annual Meeting Papers." Arrangements have been made with the printer to make available, at nominal cost, reprints of these papers for a limited time (60 days) after their publication.

The Midwest ITE Section did an outstanding job in arranging for the convenience and pleasure of all who attended this most successful annual meeting. The total registration was 335 men and 110 women.

Annual Meeting Resolutions

The following Resolutions prepared by a Special Committee were adopted by the Board of Direction and the membership of the Institute of Traffic Engineers at the 23rd Annual Meeting:

(1) WHEREAS, the accommodation and entertainment of delegates and guests to the 23rd Annual Meeting of the Institute of Traffic Engineers have been thoroughly pleasing and enjoyable, and

WHEREAS, the program of professional and technical meetings and papers has been stimulating and impressive in the achievement of the objectives of the Institute of Traffic Engineers, and

WHEREAS, the patient, thorough, and loyal efforts required for the organizing, planning, arranging, and conducting of this 23rd Annual Meeting are clearly evident,

BE IT RESOLVED, that the Institute of Traffic Engineers expresses its profound gratitude and appreciation to President W. R. Marston, and the officers, and members of the Midwest Section of the Institute for these efforts, and especially to Leslie Sorenson who had the responsibility for Local Arrangements and who with his hard working committees gave so freely and willingly of time and efforts.

(2) WHEREAS, our esteemed member, Mr. Nathan Cherniack, has devoted untiring efforts to the advancement of the Institute and its objectives for many years, and

WHEREAS, he has been chosen by the membership and has loyally served the Institute as Director, Vice-President, and during this past year, as President, and

WHEREAS, he has guided the organization and administration of Institute affairs into an efficient, departmentalized form of operation, and

WHEREAS, he has contributed further to the purposes of the Institute of Traffic Engineers through his encouragement for and development of a Traffic Engineer's Technical Notebook, be it

RESOLVED, that the membership of the Institute as a whole, on this occasion of the 23rd Annual Meeting at the time of his retirement from the presidency of the Institute, hereby expresses its deep and sincere appreciation to him for his wise counsel, his inspirational leadership, and his generous contributions of time and effort. We shall continue to seek his advice and guidance in the future development of the Institute.

(3) RESOLVED, that delegates in attendance at the 23rd Annual Meeting of the Institute of Traffic Engineers, extend sincere appreciation to the many organizations and their members for the valuable contributions they have made toward making this Annual Meeting a genuinely pleasurable and memorable event to us all while in the City of Chicago, September 7-11, 1952.

(4) RESOLVED, that the members of Institute of Traffic Engineers extend their deep appreciation to Mrs. Ralph F. Michel and her committee for their painstaking efforts in making plans and arrangements for the pleasant accommodations and entertainment of our wives while attending the 23rd Annual Meeting in Chicago, September, 1952.

(5) WHEREAS, at the Centennial of Engineering—1952, the members of the Institute of Traffic Engineers have assembled in their 23rd Annual Meeting on the occasion of this Convocation of Engineers, and

WHEREAS, this extraordinary meeting of engineers from all the diverse branches of engineering has been an inspiration to us as members of the engineering profession, and

WHEREAS, we believe that many important needs of society can be met only through use of engineering methods and means, and

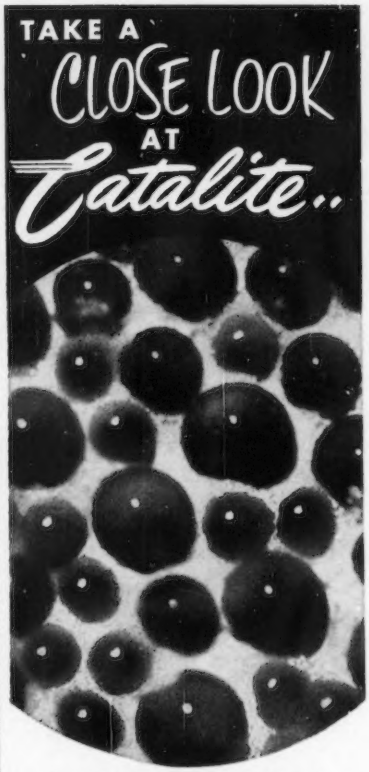
WHEREAS, street and highway traffic which is a desirable utility to society, is presently fraught with hazard and congestion which waste our national resources, and

WHEREAS, this man-machine combination of traffic in conjunction with public works for its routes and terminals demand engineering skills of a high order, be it

RESOLVED, that the Institute of Traffic Engineers hereby pledges itself anew to the service of society through the application of engineering skills in meeting these traffic demands, and

BE IT FURTHER RESOLVED, that we shall continue to develop the art and science of traffic engineering not only to the end that present facilities are most efficiently employed, but especially toward the creation of adequate routes and terminals which are dictated by traffic demand.

T. M. MATSON, Chairman
D. M. BALDWIN
W. E. DeYOUNG
H. E. NEAL
H. W. OSBORNE
W. N. VOLK



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The Mid-West Section of the Institute of Traffic Engineers

Sincerely thanks the following friends for their services and contributions to the 1952 ITE Annual Meeting held September 8-11, 1952, at Hotel Sherman, Chicago, Illinois.

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Ramp Buildings Corp., New York, New York
Robertson Buick Company, Chicago, Illinois
Sangamo Electric Company, Springfield, Illinois
Southern Signals, Inc., Shreveport, Louisiana
Streeter-Amet Company, Chicago, Illinois
Stromberg Allen & Company, Chicago, Illinois
Traffic Control Corporation, Chicago, Illinois
Tuthill Spring Company, Chicago, Illinois
The Union Metal Manufacturing Company, Canton, Ohio
Willett Company, Chicago, Illinois
Yellow Cab Company, Chicago, Illinois

New Parking Garage Finance Book Published

The story of how American cities are solving the problems of finance in meeting today's urgent demand for more adequate off-street parking facilities is told in a study of financing methods and experience, which has recently been published by the National Retail Dry Goods Association, New York City.

The study, entitled "Parking—How It Is Financed," covers the case histories of projects or programs in 27 communities of various sizes throughout the country. It was prepared by staff members of the Automotive Safety Foundation, Washington, D. C.

Its subject matter includes off-street parking projects initiated by private enterprise, by joint action of private interests and city government, and by municipal action alone. The study reviews actions necessary in determining off-street parking needs, planning, financing and administering the parking problem.

Information from scores of cities was examined in selecting good typical examples of virtually all successful financing methods, and variations of methods, which have been used. The case studies give descriptions of projects, and show land and construction costs, as well as the details of financing.

Commenting on the study, George Hansen, President, National Retail Dry Goods Association, said: "While everyone recognizes that the problem of parking is of first concern to those who want to park, the inability to park conveniently has far-reaching economic repercussions of concern to many people —the retailer, businessman, property-owner, industrialist and public official."

Recognizing the necessity for making the most efficient use of costly downtown land, even in small cities, the study deals largely with multi-story parking. It covers conventional types of structures and several of the pioneering mechanical and push-button facilities recently erected.

Private enterprise is finding a friendlier reception among investors, the study points out, adding, "Since more facts are available, and since efficient management practices have been developed, private operators have been able to obtain loans on approximately the same basis as for other commercial enterprises."

Municipalities are finding the demand excellent for revenue bonds, particularly in cases where the combined revenues of parking structures and of curb and parking lots are pledged, the study finds.

While it is objective and does not attempt to decide whether the parking problem can be totally solved, the study's reports of gains made in some cities in recent years are definite indication that the problem is capable of solution, at least to the point where old central business districts should be reasonably well served.

Research and writing of "Parking—How It Is Financed" was done by E. Earle Duffy, Public Relations, and technical consultant was D. Grant Mickle, Director, Traffic Engineering Division, both of the Automotive Safety Foundation. Advisors for the National Retail Dry Goods Association were George Plant, Manager of the Association's Store Management and Personnel Groups, and John C. Hazen, Director of NRDGA's Washington Office.

"Parking—How It Is Financed," published by the National Retail Dry Goods Association, 100 West 31st Street, New York 1, N. Y.,—Price 75 cents per copy. Order from Automotive Safety Foundation, Washington 6, D. C.

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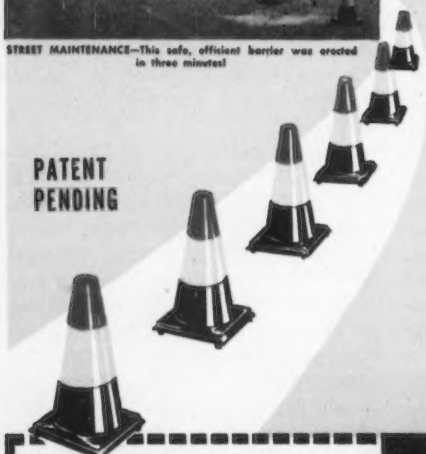

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Illinois Traffic Engineering Conference Announced

The Fifth Annual Illinois Traffic Engineering Conference will be conducted on the campus of the University of Illinois at Urbana on December 11 and 12. The conference is sponsored by the Department of Civil Engineering at the University in cooperation with the Midwest Section of the Institute of Traffic Engineers, the Illinois Division of Highways, the Illinois Traffic Safety Council and the Illinois Municipal League.

The aim of the meeting is to provide practical traffic engineering information for all persons who attend. Most of the conference will be divided into two separate sessions to allow everyone—engineers, police officers, public officials and others who are directly or indirectly interested in traffic operation on streets and highways—to choose the meeting which will offer the most helpful ideas for his particular problems. Some of the sessions will be conducted as seminars, with panel discussions and question periods arranged to stimulate the thinking and participation of everyone who attends.

A program is planned for the evening of December 11, but the conference will be concluded about 3:00 P.M. on December 12, the second day, so that nearly everyone attending may return to their home that same day.

All municipal organizations and other groups concerned about traffic improvements are being urged to send at least one representative to the meeting.

Inquiries and requests for additional information may be addressed to John R. Leek, 308 Civil Engineering Hall, University of Illinois, Urbana, Illinois.

Positions Available

TRANSPORTATION ENGINEERS wanted for California's Public Utilities Commission to make surveys of rail, highway and water transportation companies for formal determinations regulating their operations. Candidates required to have college engineering degree and two years' engineering experience with steam or street railroads or other transportation agencies or transportation regulatory agencies. Interviews in California only. Write before October 27 for details to Department TR, Personnel Board, 1015 L Street, Sacramento 14, California.

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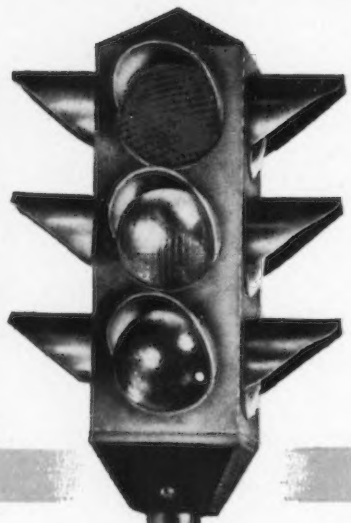

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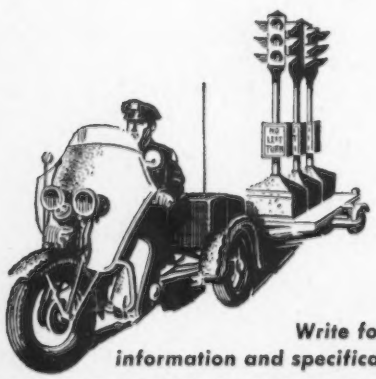

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LSU Schedules Second Annual Short Course

The Second Annual Short Course for Occupational Vision will be held in Pleasant Hall on the Campus of Louisiana State University November 3 and 4. This year the program is especially pointed to the vision of drivers of motor vehicles and will be of interest to those interested in problems of accident prevention.

The course is sponsored by the College of Engineering and the General Extension Division of LSU, and by the Louisiana Optometric Association.

More detailed information concerning the course may be had by writing H. A. Mike Flanakin, Engineering Experiment Station, Louisiana State University, Baton Rouge 3, Louisiana.

First ITE Sustaining Organization

The Marbelite Company of New York is the first firm extended an invitation to become a SUSTAINING ORGANIZATION of the Institute of Traffic Engineers under the terms of an amendment to the By-Laws adopted early this year. The first invitation was extended by the ITE Board of Direction meeting September 7, 1952. Three other firms were invited by the Board September 9.

In each case the Board's action followed careful consideration of written recommendations submitted by two voting members of the Institute. Sponsoring members had made their recommendation after consultation with representatives of the firm relative to SUSTAINING ORGANIZATION privileges and obligations, as set forth in Article XI of the Institute's By-Laws.

The Marbelite Company, well known manufacturer of traffic signals and controllers, has for many years supported the objectives of the Institute, with special interest in the field of signal design standardization.

ITE members interested in recommending firms, manufacturers, associations, foundations, etc., as SUSTAINING ORGANIZATIONS of the Institute, should write ITE Headquarters for full details of procedure.

SECTION NEWS

Western Section

The new officers for the 1952-53 year are: Herb Higgins, President; Don Berry, Vice-President, and Win Carsten, Secretary-Treasurer.

Seattle is to be the site of next year's annual meeting of the Western Section ITE. The present plan is to hold the session in conjunction with the Sixth Annual Northwest Traffic Engineering Conference at the University of Washington campus.

ITTE One-Week Course

Fifty-three persons registered for the one-week course in traffic engineering at ITTE in Berkeley June 23-27. Norm Kennedy reports that the curricular was well received and that the participation of the consultants helped to make it a highly successful week.

Conference Highlights

The Berkeley Traffic Engineering Conference held June 27 and 28 at the Institute of Transportation and Traffic Engineering of the University of California, following the one-week short course for traffic engineers, was well attended and was loaded with nationally known engineers.

Ross Shoaf, chairmanned the Friday morning session on "Divided Highway Intersections" and "Accidents vs. Volumes" and his speaker was John McDonald, assistant traffic engineer, California Division of Highways, with Al Head, assistant traffic engineer, Oregon State Highway Department, as discussion leader.

Don S. Berry chairmanned the afternoon session on "Estimating Potential Traffic on Proposed Urban Highways" with Darrel L. Trueblood, Highway Transport Research Engineer, U. S. Bureau of Public Roads, Washington, D. C., as principal speaker, and Charles V. Gay, Sam Osofsky, George Hill, William Cobb and C. G. Beer of the California Division of Highways, John Marr, Planning Engineer of Oakland, and Ralph A. Moyer, Institute of Transportation and Traffic Engineering Research Engineer, as moderator.

Dick Wilson chairmanned the Saturday morning first session on "School Crossing Protection" with Bob Dier, Traffic Engineer, City of Long Beach; Rex Still, Traffic Engineer of Washington Department of Highways, and B. A. Switzer, Assistant Traffic Engineer, California Division of Highways, and "Traffic Signal Seminar" with C. C. Robinson, Assistant Traffic Engineer, City of Portland; Karl Moskowitz and Vern Wright, Assistant Traffic Engineers, California Division of Highways.

J. C. (Jake) Young chairmanned the second half of the morning session on "Reports and New Developments from the Field." Herb Higgins, Office Engineer, Washington Department of Highways; Jack Faustman, Traffic Engineer, Sacramento; Blair Geddes, District Traffic Engineer, California Division of Highways, Marysville; Hank Barnes, Traffic Engineer, City of Denver, and Doug Carmody, Traffic Engineer, Alameda, California, gave interesting reports on such matters.

The technical sessions were held in the lecture room of the Life Science Building on the campus of the University of California. The Friday session was so well attended that the lecture room of 200 seats was virtually full.

From California

Reports from San Diego:

Ralph Luckenbach, one of the town's better sport fishers, has landed six yellowtail in the Derby but they weren't large enough to qualify.

Ed Hall has just completed an inventory of regulatory signs for the county. He is now in the process of checking existing conditions with the current legislation in order to bring them up to date.

Mel West has by this time completed a postcard O-D Survey on all principal east-west arteries between the cities of La Mesa and San Diego. Results of the survey will be used to determine the routing and design features of new facilities to serve the two areas.

Jim Reading is the proud grandfather of a baby girl, his sixth grandchild. The proud mother is his daughter, Virginia, whom many Westernites will remember as the young lady who helped sell Los Angeles as the site of the 1951 ITE meeting during the 1950 New York Convention.

Results of the South Bay Area Portaflash Study have been published. Although the study was of a limited nature, no appreciable differences in approach speeds at the school crossings were noted. For further details, Ed Hall has a few copies available for distribution.

Mr. and Mrs. Jack Henberger are the proud parents of a 7-pound baby girl born July 5. Mother and baby are doing fine but the traffic office in San Diego is suffering.

* * *

Switch

Jake Young, ex-T.E. for the Californit Division of Highways, became Design Engineer as of July 1. E. T. Tillford takes over Jake's old job.

Missouri Valley Section

A meeting of the Missouri Valley Section was held on September 9th during the ITE Annual Meeting at the Hotel Sherman in Chicago with an attendance of nine (including all officers) of the total membership of 16. Mr. Roger E. Kuehl (Junior Member, ITE) and Mr. W. W. Rankin, Section Affiliate, were elected to the membership of the Section.

During the meeting Thomas J. Seburn was designated by President Fisher to represent the Section in petitioning the Institute to hold its 1954 Annual Meeting in Kansas City (Editor's Note: The ITE Board of Direction has designated Kansas City as the 1954 site).

The matter of recommending firms in the Missouri Valley Section area to receive Sustaining Organization invitations from the Institute's Board of Direction was considered. At least two firms either already have been or will be recommended in the near future.

Tentative plans were made to hold another Section meeting during the Fifth Traffic Engineering Conference scheduled for November 19-20 at the University of Missouri, Columbia, Missouri. All members and affiliates of the Missouri Valley Section have been invited to attend and participate in the deliberations of this Conference.

Reported by Leon W. Corder
Vice-President

ITE Calendar

24th ANNUAL MEETING

Hotel Statler
Buffalo, N. Y.

Sept. 27 - Oct. 1, 1953

25th ANNUAL MEETING

Kansas City, Missouri

September, 1954

Letter to The Editor

Sir: The proper timing of traffic signals is an exacting job and is subject to many variables. The following clipping from the Portland Oregonian of Tuesday, July 8, 1952, is an example of the service to the public afforded by properly timed signals.

C. C. ROBINSON
Asst. Traffic Engineer
Portland, Oregon

THE CLIPPING:

Baby Delivered Between Lights

Portland's traffic lights were timed just right for the stork Monday.

Dr. Roye Rasmussen, Gresham osteopathic physician enroute to Portland Osteopathic Hospital with a mother-to-be, pulled up to the red light at N. E. 12th Avenue and Sandy Boulevard, heard a cry and turned around. There was the baby.

The doctor jumped to the back seat, put the finishing touches on the delivery, wrapped the infant in a towel and climbed back behind the wheel just in time to start up as the light changed to green. Not a motorist was delayed as he continued to the hospital.

Mother of the 7-pound, 12-ounce boy was Mrs. Rena Suppa, 39, postmistress at Simnasho on the Warm Springs Indian reservation. The baby's father, Frank Suppa, is a field man for the Warm Springs Confederated tribe councilmen.

Mother and child were doing very well.

Statement of the ownership, management, and circulation required by the Act of Congress of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233) of Traffic Engineering published monthly at Plainfield, New Jersey, for October 1, 1952.

State of New Jersey
County of Union
ss.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—Interstate Printing Corporation, Plainfield, N. J.

Editor—M. Mansfield Todd, Strathcona Hall, New Haven 11, Conn.

Managing Editor—None.

Business Manager — M. Mansfield Todd, Strathcona Hall, New Haven 11, Conn.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other un-incorporated firm, its name and address, as well as that of each individual member, must be given).

Institute of Traffic Engineers, Strathcona Hall, New Haven 11, Conn.

President—F. Bruce Crandall, State Highway Department, State Highway Building, Salem, Oregon.

Vice-President—Donald M. McNeil, Consultant Engineer, 706 Benedum Trees Building, 223 Fourth Avenue, Pittsburgh 22, Pennsylvania.

Vice-President — Harry Porter, Jr., Senior Traffic Engineer, National Safety Council, 425 North Michigan Avenue, Chicago 11, Illinois.

Secretary-Treasurer — Charles W. Prisk, Bureau of Public Roads, Highway Transport Branch, Washington 25, D. C.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.).....

OSMUN FORT,
Publisher

Sworn to and subscribed before me this 6th day of October, 1952.

WILLIAM L. CHRISTIAN,
[Seal] Notary Public of N. J.
(My commission expires
March 5, 1953)

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New Appointment

In the early part of this past summer, Leslie Williams was appointed Deputy Commissioner of the Department of Streets of the City of Philadelphia. This appointment places Mr. Williams in charge of all the traffic engineering and highway functions under the City's new Charter.

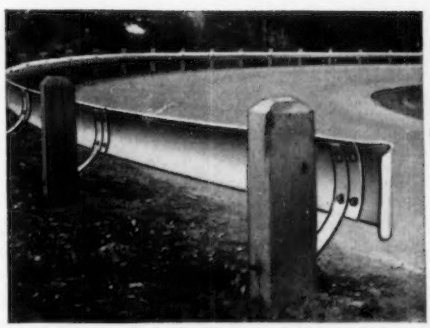
Leslie Williams

Williams was born forty-five years ago in Penzance, England, which Gilbert and Sullivan made famous with their "Pirates of Penzance" operetta. He came to the United States in the early part of the roaring twenties and received his elementary education at Mount Herman Academy on the Connecticut River where it crosses the northern Massachusetts line. After graduation from Mount Herman he was admitted to Harvard University where he received his Bachelor's degree and later was awarded a Master's degree in City Planning.

At about that time he became deeply interested in traffic engineering and studied for a year at the Bureau for Street Traffic Research which was then located at Harvard University. After receiving his certificate he served the next three years on the staff of the Bureau of Highway Traffic which moved to Yale a year after he joined its staff. Following his teaching career he became affiliated with the City Planning and Traffic Board of Providence, Rhode Island, serving as Director. When World War II broke out and the necessary conservation of labor, gasoline, rubber and vehicles raised so many problems on the home front, Williams was appointed Engineering Director of the Governor's Commission on Metropolitan Transportation for the State of Rhode Island. In this post he dealt vigorously with the problems of war worker transportation, staggered hours, gasoline rationing, and related matters. During the latter years of the war almost all governmental and engineering organizations began developing post-war plans. Because of Williams' planning ability and his familiarity with traffic engineering, he was selected at that time as Traffic and Planning Engineer for the American Transit Association, and for a number of years brought to the attention of our planning officials the values and importance of planning for mass transportation in the development of urban traffic facilities. Following his work with the American Transit Association, he was employed as Traffic Engineer and City Planner for the Automobile Club of New York in which position he rendered technical advice to many of the urban communities in the New York metropolitan area.

For a number of years, he served the Institute of Traffic Engineers in the capacity of editor of Traffic Engineering. He is a member of many important traffic and planning committees of professional engineering societies, and is currently serving as chairman of the City Planning Division of the American Society of Civil Engineers. He has contributed many technical articles on traffic engineering, and has lectured before many groups on diverse phases of traffic engineering, and is noted for his special interest in its planning aspects.

In his new position Williams will have full responsibility for the administration of street and highway design, construction, and lighting as well as the traffic and operations. All traffic engineers will join in wishing Williams a very happy and prosperous connection with the City of Philadelphia in the administration of all matters relating to highways and their operation under a single agency of government. Under such capable leadership the city of brotherly love will continue its progress in traffic engineering.



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Secretary's Column

The Report of the Executive Secretary presented to the 23rd Annual Meeting will comprise the column this month.

First, I want to express my pleasure at standing before you as your Executive Secretary, and to thank each member of the Board of Direction for the confidence they have reposed in me by making this opportunity available. Also, I want to thank all of you members for the cooperation that has manifested itself in so many ways. I hope and trust with all my heart that I may continue to measure up to the high standards of performance in this position set by my predecessors, Bob Holmes and Fred Hurd, and thereby continue to merit your approbation.

I think that, without intentionally boasting, it is reasonable for me to say that the Institute has continued to make progress during the administrative year beginning October 1st last. Certainly, it is not boasting for I have had little to do with it. Of the eleven months that have passed a full eight of them found the fine hand of Fred Hurd at the helm guiding the operation of Headquarters. Thus, the accomplishments to be reported are actually accomplishments because of Fred's efforts. The progress that has been made is truly remarkable because of the difficult circumstances under which he worked.

You all know that Fred had to carry on his regular teaching duties in addition to being Executive Secretary. To compound the problem Miss Ann Lincoln who had always managed the business affairs of the magazine found it necessary to ask for an extended leave of absence last September. Miss Lincoln was on leave until she resigned in February. Financial limitations prevented the employment of a replacement. Consequently, both the magazine and all Headquarters affairs had to be handled during the entire year with a total staff of three, including the Executive Secretary.

The successful operation of Headquarters on the limited budget would have been impossible if your former Executive Secretary had not generously donated much of his free time, and if exceedingly efficient work had not continued to be rendered by the other two members of the staff—Miss Bridget Pellegrino and Miss Anne Leftwich.

So, the report I bring you is really a report of the accomplishments of the team of Hurd, Pellegrino and Leftwich, detailed as follows:

Board Meetings

The Board of Direction held five meetings during the years. They were:

September 25, 1951—Los Angeles
January 16, 1952—Washington, D. C.
April 4-5, 1952—Chicago
June 13-14, 1952—Chicago

And the final one yesterday afternoon (September 7) here at the Hotel Sherman.

Probably the most important administrative policy decided during the year related to the development of procedure for the establishment of the Sustaining Organization structure, as provided for in the Constitutional amendments which were adopted at the last annual meeting.

Yesterday the Board, by motion, extended the first invitation to become a Sustaining Organization to one firm.

Headquarters Operations

Your Secretary-Treasurer has already reported the financial status as of August 31 for the first eight months of the current fiscal year. The fiscal year has agreed with the calendar year since January 1, 1951.

Last year an excess of revenue over expenses of $187.23 resulted from the year's operations. This was remarkable in view of the fact that a deficit of $3,100 was anticipated when the budget was adopted early in 1951.

In January of this year the Board adopted a balanced budget for 1952. I estimate that at the year's end our receipts will total $34,000 and exceed our expenditures of about $33,500 by a little better than $500.

Personnel Services

During the year we have continued to receive many requests for general information dealing with traffic engineering. The past three months have brought requests from Israel, Montevideo, Japan, India and other foreign places.

The traffic engineering employment field continues to offer more opportunities than the supply of available traffic engineers can meet. Again Headquarters has endeavored to keep interested members informed of job openings.

PUBLICATIONS

Traffic Engineering Handbook

While the sale of the Handbook has continued at a fairly steady rate, the volume of sales still continues disappointing from a financial standpoint. Five hundred and thirty-one copies were sold during the year, bringing total sales to 4,031 copies as of August 1st. Unfortunately, we still need to sell approximately 1,000 more copies before the cost of publishing the edition can be offset.

Technical Bulletins

Technical Bulletin No. 1—"Adjustable Face Traffic Control Signal Heads" which was revised last year, was approved by the American Standards Association, and 2,500 copies were printed. Approximately 2,000 of these were distributed during the year.

Since the first printing in 1950 of Technical Bulletin No. 3—"Traffic Actuated Traffic Signal Controllers," a total of approximately 1,800 copies have been distributed.

Proceedings

I regret to have to report that the fine 152-page volume of the 1951 Proceedings prepared under the capable guidance of Editor Charles S. LeCraw, Jr. has not met with financial success. Production and promotion cost for 1,100 copies was $1,540.00. Six hundred and twenty-five were distributed to the membership without charge, and to date only 126 copies have been sold with a return of $283.50. Consequently, we now have a book loss of $1,256 on this edition. Thus, the trend beginning several years ago has continued and by early this year the financial drain on Institute funds had become so evident that the Board was forced to reluctantly order suspension of the publication of the annual Proceedings. Many—and I hope all—of the papers presented at the Technical Sessions these next three days will be published in forthcoming issues of the magazine.

Traffic Engineering Magazine

The magazine continues to be the backbone of the financial structure of the Institute. For the last fiscal year total receipts from the magazine were $23,976.00 subdivided into $5,100.00 from subscriptions, $96.00 for back issues sold, and $18,780.00 from advertising. The expenses, printing, distribution, etc., totaled $12,075.00, leaving us a net return of $11,901.00. The gross receipts from the magazine comprised 72 per cent of the gross receipts of the Institute.

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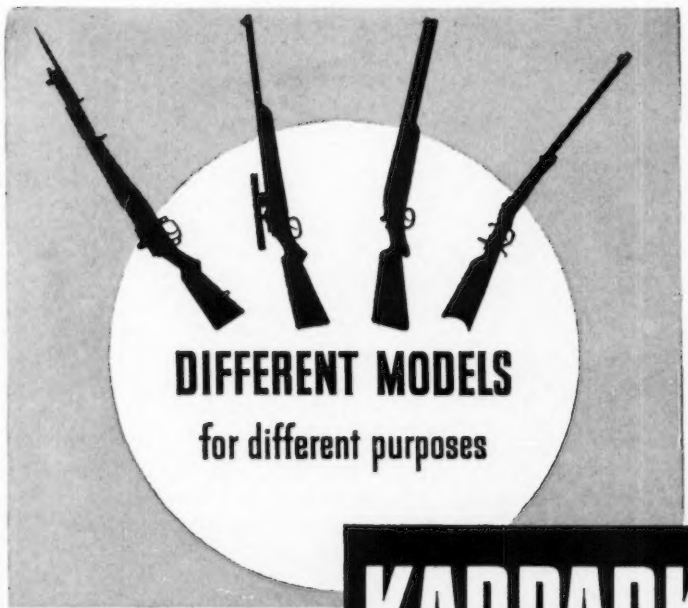

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Thus, it is obvious why Headquarters must give first priority to producing the magazine, often at the expense of laying aside other desirable and even necessary work, because of our limited staff. This is not an entirely satisfactory situation, but the hard realities of financing make this course mandatory.

In the current fiscal year the fortunes of the magazine have improved somewhat—due we trust to an improvement in the magazine itself. Paid subscriptions are now 2,044 comprised of the Institute membership, plus 1,390 nonmembers. Paid subscriptions have increased during the year by a total of 238 more than was reported a year ago. The gross return from advertising in the Special Convention issue, which is now available at the Registration Desk, is larger than any single issue for several years. Of course, considerable extra effort was devoted to this Special Issue, particularly by Mr. Stanley Siegel of the Local Arrangements Committee, whose help in planning the details of this issue has been simply invaluable.

I also want to take this opportunity of expressing the magazine's debt of gratitude to the other Associate Editors, and especially to Technical Editor Martin C. Stark for continuing to prepare the all inclusive index for each volume.

Membership

Thirty transfers in membership grade occurred during the year, while 85 new members were elected, including those upon which the Board took action yesterday afternoon. Three members have died and five were dropped. One Honorary membership was conferred and two Affiliates were invited into membership.

Last year's report showed a membership of 600. The net increase, amounting to about 13 per cent, during the year brings the present membership to an all-time high of 677.

Local Sections—Student Chapters

No new Sections or Student Chapters were formed during the year. Most of the Sections reported increased activities. Western ITE remains the largest Section with about 135 members.

The Midwest Section is the second largest, and its activities this year have all been devoted to making the event we are opening today one of great pleasure for all of you.

Two Student Chapters were active during the past school year.

Conclusion

In conclusion, I want to reiterate my appreciation to the Board of Direction;

To President Cherniack for his patience and wise counsel;

To Fred Hurd for a good job so well done, and for his advice so often sought;

To Miss Pellegrino and Miss Leftwich for their continued loyalty and efficiency;

And, to all of the membership for the cooperation I know will continue to be forthcoming;

And, I pledge to all my continued best efforts toward improving the service provided by this—our Institute of Traffic Engineers.

M. M. Todd
Executive Secretary

ON THE SHELF

Compiled by
Mrs. Cele Kagan, Acting Librarian
Yale Bureau of Highway Traffic

Hall, Edward M.

A Comparison of Delay to Vehicles Crossing Urban Intersections Four-Way-Stop vs. Semi-Traffic-Actuated Signal Control. The Institute of Transportation and Traffic Engineering, University of California, Berkeley, Los Angeles, California, 1952. (Student research report No. 4). 91 pp.

Study contains factual data concerning the operation of four-way-stop control and semi-traffic-actuated signal control. Findings revealed that the "differences between the two types of control studied for both the average total control-device for all vehicles and the average combined control-device delay per vehicle increased as the volumes increased."

Kentucky. Department of Highways and the Committee on Functions and Resources of State Government.

Kentucky Highway Systems and The State Department of Highways. (Research publication No. 29, Frankfort, Kentucky.) Kentucky Legislative Research Commission, 1951. 96pp.

This report, following and supplementing a report prepared by Public Administration Service in 1947 entitled Kentucky Highways, Their Administration and Financing, includes an analysis of the State Department of Highways and its administration.

National Association of Insurance Agents and Association of Casualty and Surety Companies.

"Safety is Good Business." The Associations, 1951. 32pp.

A five-point program consisting of Driver Education, Bicycle Safety, Motor Vehicle Inspection, Driver Licensing and Pedestrian Safety and Traffic Control, issued in an effort to promote accident prevention in the community.

Paterson, New Jersey. City Planning Board.

Route 4 Parkway Extension and Paterson. The Board, 1951. 12pp.

A report on the Paterson section of the Route 4 Parkway.

New York City. Department of Public Works.

Attendance and Revenue Studies for Six Off-Street Parking Facilities. The Department, 1950. 173pp.

Report by Madigan-Hyland containing information on existing parking facilities, parking habits, potential demand for new parking and financial analyses.

New York University Division of General Education, Center for Safety Education.

A Guidebook for Automobile Driving Schools. The Division, 1952. 51pp. $1.00.

Selected material for teaching driving that can most effectively be applied to adult students through automobile driving schools.

North Carolina State Highway and Public Works Commission, Division of Statistics and Planning.

Report on Origin-Destination Traffic Survey at Statesville, North Carolina. The Commission, 1951. 29pp.

Report in cooperation with the U. S. Bureau of Public Roads providing basic data for the planning of possible future highway and street improvements at Statesville.

Pennsylvania Department of Highways, Planning and Traffic Division.

Scranton Metropolitan Area Traffic Survey. The Department, 1951. 52pp.

In cooperation with the U. S. Bureau of Public Roads.

St. Louis, Missouri. Urban Area Expressway Report Project.

Expressway Plan for the St. Louis Urban Area in Missouri. The City, 1951. 60pp. (Cooperating agencies: United States Bureau of Public Roads, Missouri State Highway Commission, City of St. Louis.)

Recommendations for the construction of a system of modern expressways for St. Louis and surrounding area. Detailed descriptions, plans, and profiles are included.

New York. Joint Legislative Committee on Motor Vehicle Problems.

A Comparative Study of the Vehicle and Traffic Law of the State of New York With the Uniform Vehicle Code. The Committee, 1951. 355pp.

A factual analysis prepared in an effort to simplify New York State's motor vehicle laws. In general, New York State's laws are in agreement with the Uniform Vehicle Code and the recommendations of the President's Highway Safety Conference but there do exist omissions, deviations and overlapping provisions resulting in conflict. This is an attempt for standardization.

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HEART OF SYSTEM is G-E central control panel. Discussing progressive-timing control are Newark's Public Safety Director J. B. Keenan, at left, and Traffic Engineer E. L. Cyr.

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